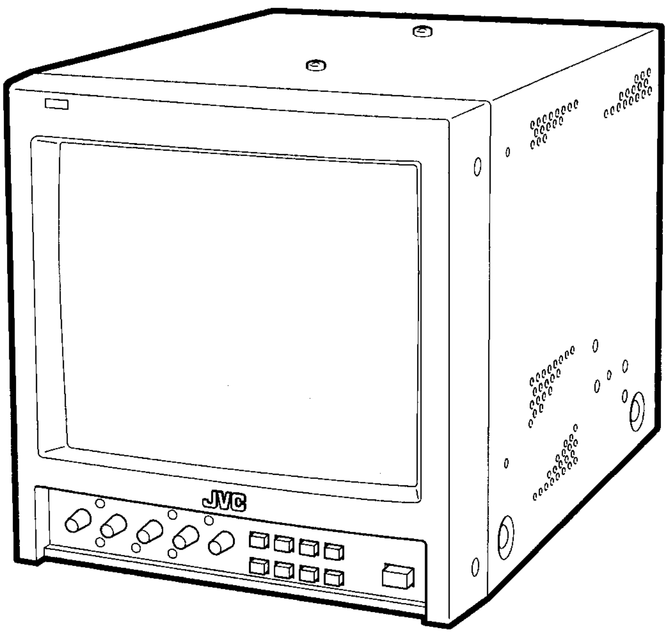
JVC

SERVICE MANUAL

COLOR VIDEO MONITOR

TM-950DU

BASIC CHASSIS
B10



CONTENTS

No.51717
May 2000

SPECIFICATIONS

Item		Content
Dimensions (W×H×D)		8-3/4" × 9-1/8" × 14-5/8" (222mm × 229.5mm × 370mm)
Mass		17.4lbs (7.9kg)
Colour System		NTSC / PAL
Picture tube		9 inch measured diagonally / 90° deflection / in-line gun type Vertical stripe phosphor pitch 0.5mm
Screen size (W×H)		6-7/8" × 5-3/8" (175mm × 137mm) 8-3/4" (222mm) measured diagonally
High voltage		22kV±1kV (at zero beam current)
Scanning frequency		(H) : 15.734kHz(NTSC) / 15.625kHz(PAL) (V) : 59.94Hz(NTSC) / 50Hz(PAL)
Horizontal resolution		280 TV line or more(SDI input mode)
Power Input		AC 120V, 50/60Hz
Power Consumption		0.83A
Speaker		3-3/16" (8cm) round type, 8Ω
Audio Output		1W (monaural)
Input A	**Video**	1V(p-p), 75Ω, negative sync, 1 line, BNC connector × 2, bridged connection is possible, auto termination.
	Audio	500mV(rms), high Impedance RCA pin jack × 2, bridged connection is possible
Input B	**Video**	1V(p-p), 75Ω, negative sync, 1 line, BNC connector × 2, bridged connection is possible, auto termination.
	Audio	500mV(rms), high Impedance RCA pin jack × 2, bridged connection is possible
	SDI input	Component serial digital SMPTE259M compliant IN : BNC connector × 1 Active through out : BNC connector × 1 SDI : signal is input to INPUT B.
External sync		Composite sync 0.3～4V(p-p), 75Ω, 1 line BNC connector × 2, bridged connection is possible, auto termination.
Tally / Remote		DIN 8 pin × 1
Environmental conditions		Operation temperature : 0°C – 40°C (32°F-104°F) Operation humidity : 20% - 80% (non-condensing)

Design & specifications are subject to change without notice.

OPERATING INSTRUCTIONS

JVC®

COLOR VIDEO MONITOR

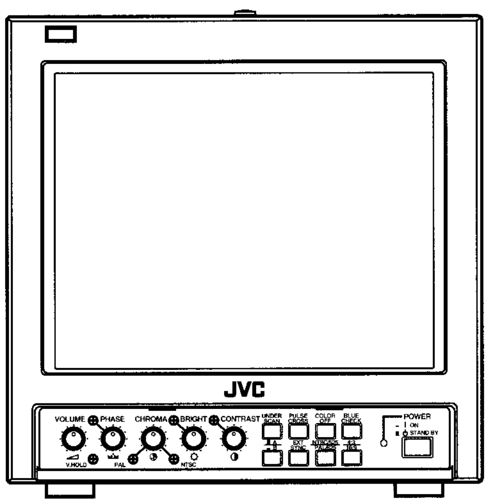
TM-950DU

INSTRUCTIONS

For Customer Use:
Enter below the Serial No. which is located on the rear of the cabinet. Retain this information for future reference.

Model No. : TM-950DU

Serial No. :



May 2000 No.51717

Thank you for purchasing this JVC color video monitor. Before using it, read and follow all instructions carefully to take full advantage of the monitor's capabilities.

SAFETY PRECAUTIONS

WARNING:
TO PREVENT FIRE OR SHOCK HAZARDS, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE.

CAUTION:
To reduce the risk of electric shock, do not remove cover.
Refer servicing to qualified service personnel.

This monitor is equipped with a 3-blade grounding-type plug to satisfy FCC rule. If you are unable to insert the plug into the outlet, contact your electrician.

When installing this unit, be sure that it is situated close to an easily accessible electrical outlet.
The SDI circuit is always active when the unit is plugged into an AC outlet.

FCC INFORMATION (U.S.A. only)
CAUTION: Changes or modifications not approved by JVC could void the user's authority to operate the equipment.

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:
- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

■ PRECAUTIONS
- Use only the power source specified on the unit. (120 V AC, 50 Hz/60 Hz)
- Keep flammable material, water, and metal objects away from the unit — especially the interior of the unit.
- This unit incorporates high voltage circuitry. For your own safety and that of your equipment, do not attempt to modify or disassemble this monitor. There are no user-serviceable parts inside.
- Unplug the monitor when you're not going to be using it for a long period.

■ HANDLING
- Avoid shocks or vibrations. These may damage the unit and cause it to malfunction.
- Do not block the ventilation slots.
- Do not expose this unit to high temperatures. Extended exposure to direct sunlight or a heater could deform the cabinet or cause the performance of internal components to deteriorate.
- Do not place the unit near appliances generating strong electric or magnetic fields. These can generate picture noise and instability.
- Keep the monitor clean by wiping the cabinet and CRT screen with a piece of soft cloth. Do not apply thinner or benzine. These chemicals can damage the finish and erase printed letters. When the unit is excessively dirty, use a diluted neutral cleanser, then wipe away the cleanser with a dry cloth.

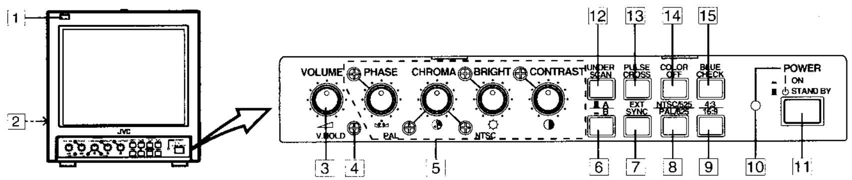
SCREEN BURN
- It is not recommended to keep a certain still image displayed on screen for a long time as well as displaying extremely bright images on screen. This may cause a burning (sticking) phenomenon on the screen of cathode-ray tube. This problem does not occur as far as displaying normal video playback motion images.

CONTENTS

CONTROLS AND FEATURES

Front

<Front Panel>



1 Tally lamp
Indicates that a control signal is being received. The tally lamp functions when the control signal is input to the TALLY/REMOTE terminal on the rear panel.

2 Speaker
A built-in speaker is located inside the left side panel.

3 VOLUME control
Adjusts the speaker volume.

4 V.HOLD control
Use a small-bladed screwdriver to adjust the image's vertical stability.

5 Picture control section
PHASE, CHROMA, BRIGHT and CONTRAST controls are available.
The standard setting mode can be obtained by setting each control to the center click position. To adjust a setting, insert a small-bladed screwdriver into the space around the knob and turn it to the desired position.
When adjusting, use the small-bladed screwdriver and insert it into the control hole around the required control knob.

- **PHASE control**
  Adjusts picture hue.
- **CHROMA control**
  Adjusts picture color density.
- **BRIGHT control**
  Adjusts picture brightness.
- **CONTRAST control**
  Adjusts picture contrast.

Notes:
* The PHASE control is effective only in the NTSC color system mode.
* The standard CHROMA setting can be adjusted to suit the NTSC or PAL color system.

6 INPUT A/B switch
Select the video signal input to the video input terminals on the rear panel.
A (■) : Selects the signal input to VIDEO A and AUDIO A terminals on the rear panel.
B (▬) : Selects the signal input to VIDEO B and AUDIO B, or SDI and AUDIO B terminals on the rear panel.

Note:
* INPUT B supports both VIDEO and SDI terminals, and can be switched with the VIDEO/SDI switch on the rear panel.

7 EXT SYNC switch
Selects internal sync or external sync.
When using with the external sync, input the sync signal to the EXT SYNC terminal on the rear panel.
(■) : Internal sync
(▬) : External sync

Note:
* When an SDI input signal is selected, internal sync is maintained regardless of the position of the EXT SYNC switch.

8 NTSC/525 / PAL/625 switch
Selects the color system and deflection circuit.
NTSC/525 (■) : The NTSC color system is selected and the vertical deflection frequency is set to 60 Hz.
PAL/625 (▬) : The PAL color system is selected and the vertical deflection frequency is set to 50 Hz.

Note:
* When the SDI terminal is selected, the switch must be set according to the vertical frequency of the input signal.

9 4 : 3/16 : 9 switch
Selects the aspect ratio (4:3 or 16:9) of the picture displayed on the screen.
(■) : 4:3
(▬) : 16:9

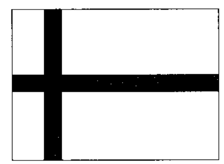
Note:
* When a 4:3 picture is viewed in the 16:9 mode, the size of the image is reduced vertically.

10 Power indicator
Lights in green when the power is ON.
Lit : When the power is on.
Unlit : When the power is set to stand-by.

11 POWER switch
Press this switch to turn the power on or set it to stand-by mode.
ON (▬ I) : Power is turned on and the power indicator lights.
STAND BY (■ ⏻) : Power is set to stand-by mode.

12 UNDER SCAN switch
Selects the scanning mode (over scan screen or under scan screen).
(■) : Over scan screen
(▬) : Under scan screen

13 PULSE CROSS switch
Checks the retrace period (sync signal) by delaying the input signal.
(■) : Normal screen
(▬) : Retrace period display screen



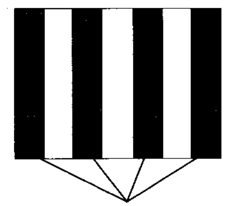
Note:
* When an SDI input signal is selected, the normal screen is maintained regardless of the position of the PULSE CROSS switch.

14 COLOR OFF switch
Selects the screen mode (color or B/W). Useful when you want to check the white balance.
(■) : Color screen
(▬) : B/W screen

15 BLUE CHECK switch
Selects the screen mode (normal or monochrome blue screen). Useful when you want to check the chroma and phase adjustment.
(■) : Normal screen
(▬) : Monochrome blue screen

Note:
* The PHASE adjustment is effective only in the NTSC/525 mode.

[How to adjust]
1. Select the monochrome blue screen mode and input color bar signals in the order of brightness.
2. Adjust the CHROMA and PHASE controls until the density and brightness of each blue bar are the same.

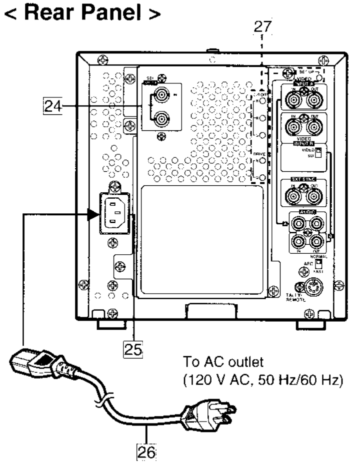


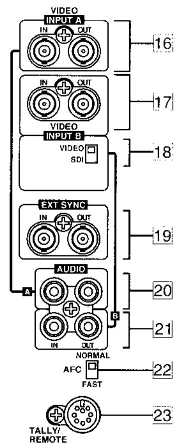
Adjust the blue bars to the same density and brightness.

CONTROLS AND FEATURES (cont'd)

Rear

< Rear Panel >





16 VIDEO A terminals
Video signal input (IN) and output (OUT) terminals.
The output terminal is bridge-connected.
IN : Video signal input terminal
OUT : Bridge-connected video signal output terminal

Notes:
* For corresponding audio signals, use the AUDIO A terminals 20.
* Also refer to the Basic Connection Example on page 8.

17 VIDEO B terminals
Video signal input (IN) and output (OUT) terminals.
The output terminal is bridge-connected.
IN : Video signal input terminal
OUT : Bridge-connected video signal output terminal

Notes:
* For corresponding audio signals, use the AUDIO B terminals 21.
* Also refer to the Basic Connection Example on page 8.

18 VIDEO/SDI switch
Selects the input terminal when INPUT B is selected with the INPUT A/B switch on the front panel.
VIDEO : Displays the video signal input to the VIDEO B terminal.
SDI : Displays the digital signal input to the SDI terminal via D/A conversion.

Note:
* Select VIDEO or SDI according to whether the input signal is a composite signal or a component serial digital signal.

19 EXT SYNC terminals
External sync signal input (IN) and output (OUT) terminals.
The output terminal is bridge-connected.
IN : Input terminal for the external sync signal
OUT : Bridge-connected output terminal

Note:
* Also refer to the Basic Connection Example on page 8.

20 AUDIO A terminals
Input (IN) and output (OUT) terminals for the audio signal corresponding to the VIDEO A terminals 16.
The output terminal is bridge-connected.
IN : Audio input terminal
OUT : Bridge-connected output terminal

Note:
* For corresponding video signals, use the VIDEO A terminals 16.

21 AUDIO B terminals
Input (IN) and output (OUT) terminals for the audio signal corresponding to the VIDEO B terminals 17 or SDI terminals 24.
The output terminal is bridge-connected.
IN : Audio input terminal
OUT : Bridge-connected output terminal

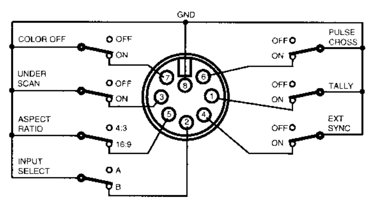
Note:
* For corresponding video signals, use the VIDEO B terminals 17 or SDI terminals 24.

22 AFC switch
Selects the AFC (Automatic Frequency Control) time constant for the horizontal sync circuit.
Correct the skewed portion of the picture.
NORM position : Normal mode
FAST position : Fast mode (fast: smaller time constant)

23 TALLY/REMOTE terminal
External control terminal (DIN 8-pin). Tally lamp, VIDEO A/B (input selection), Under Scan, External Sync, 4:3/16:9 (aspect ratio), Pulse Cross, and Color Off modes can be controlled from an external unit.

Notes:
* When you're controlling the monitor externally via the TALLY/REMOTE terminal, set all corresponding switches on the front panel to the OFF (■) position. (Whichever switch is pressed first has priority so remote switches may not function if the panel switches are ON (▬) position.)
* The following functions do not work when the SDI terminal is selected:
  • PULSE CROSS does not work.
  (Normal screen is maintained.)
  • EXT SYNC does not work.
  (Internal sync is maintained.)

■ **TALLY/REMOTE terminal pin layout**



Pin No.	Signal	
1	TALLY lamp	ON/OFF
2	INPUT SELECT (INPUT A/B)	A/B
3	UNDER SCAN	ON/OFF
4	EXT SYNC (External Sync)	ON/OFF
5	ASPECT RATIO (4 : 3 /16 : 9)	4 : 3 /16 : 9
6	PULSE CROSS	ON/OFF
7	COLOR OFF	ON/OFF
8	GND	

24 SDI terminals
Input (IN) terminal for component series digital signals and active through output (OUT) terminal.

Notes:
* For corresponding audio signals, use the AUDIO B terminals 21.
* Also refer to BASIC CONNECTION EXAMPLE on page 9.

25 AC Inlet [AC IN]
Power input connector. Connect the provided AC power cord 26 to an AC outlet (120 V AC, 50 Hz/60 Hz).

26 Power cord
Connect the provided power cord (120 V AC, 50 Hz/60 Hz) to the AC IN connector.

27 Switch/control adjustment holes for service personnel
For adjustment of SET UP switch, CUT OFF (B, R, G) control and DRIVE (R, G) control during servicing.

Note:
* These controls are exclusively for the use of service personnel. Do not attempt to adjust them yourself.

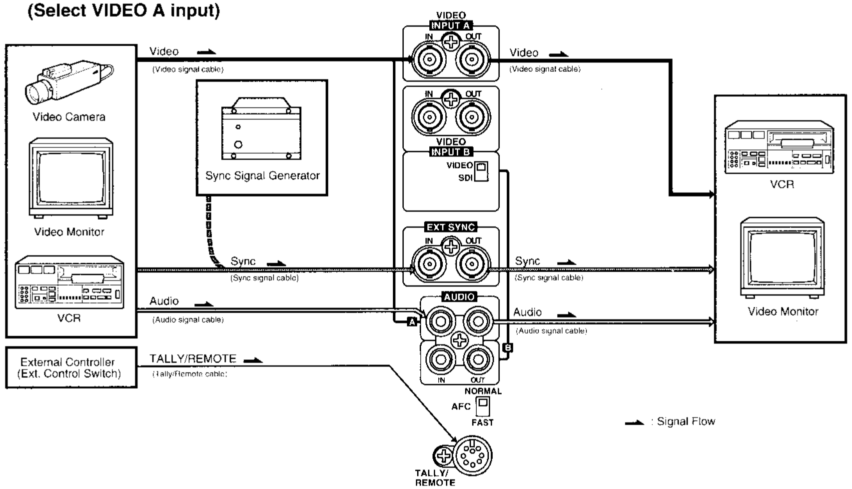
About the SDI Terminal
The SDI terminal inputs signals to a serial digital interface (SDI) circuit, where it performs D/A conversion of SMPTE 259M-compliant 4:2:2 component serial digital signals.
The SDI circuit in this monitor automatically performs analog conversion to NTSC/525 or PAL/625 video signals.

Notes:
* In this monitor, the following operations are necessary when the SDI terminal is selected:
  • Setting the NTSC/525 / PAL/625 switch
  • Setting PHASE control in the NTSC/525 video signal
* The following functions do not work when the SDI terminal is selected:
  • PULSE CROSS does not work.
  (Normal screen is maintained.)
  • EXT SYNC does not work.
  (Internal sync is maintained.)

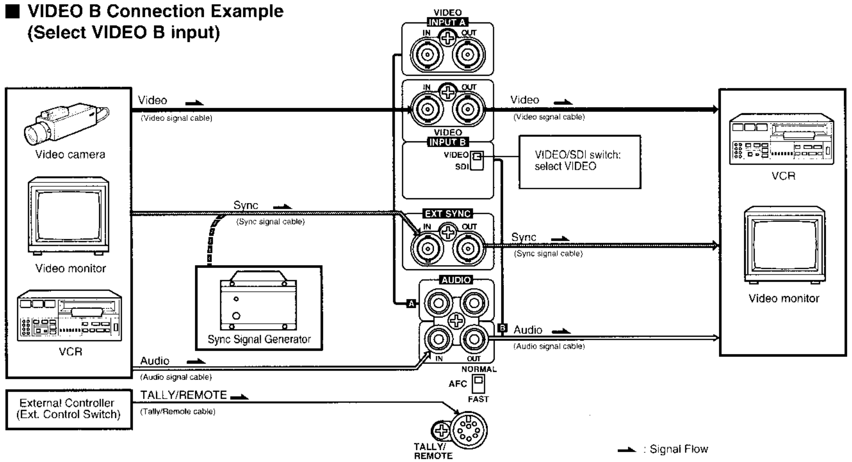
BASIC CONNECTION EXAMPLE

- Before connecting your system, make sure that all units are turned off.
- The illustration below shows some examples of different connections. Terminal connections may differ depending on the component connected. Be sure to refer to the instructions provided with the unit(s) you are connecting.
- Each pair of input (IN) and output (OUT) terminals are bridge-connected.
- If you're not connecting any equipment to a bridged output (OUT) terminal, be sure not to connect any other cables to the bridged output (OUT) terminal as this will cause the terminating resistance switch to open (auto terminate function).
- When making a bridge connection, connect the input (IN) and output (OUT) terminals on the monitor to separate video components.
  (For example, if both terminals are connected to the same VCR, resonance may occur except during playback. This is caused by the same video signal "looping" between the VCRs, and is not a malfunction.)
- Select the video input (VIDEO A or VIDEO B) with the VIDEO A/B switch on the front panel.

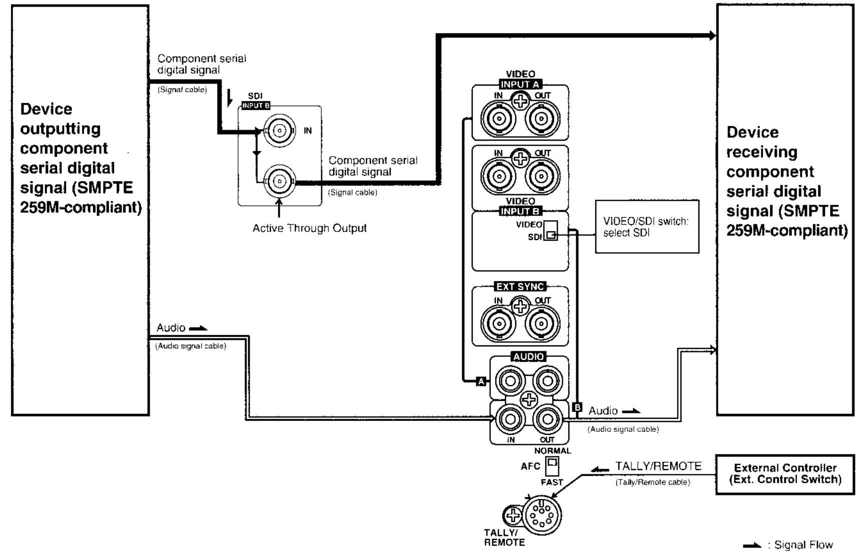
■ VIDEO A Connection Example (Select VIDEO A input)



■ VIDEO B Connection Example (Select VIDEO B input)



■ SDI Connection Example



Notes:

- The audio signal embedded in the component serial digital signal cannot be used with this unit. Use the analogue output signal instead.
- Even when the power is set to stand-by mode, the signal from the IN terminal is output to the Active Through output terminal. (Power is always supplied to the SDI circuit.) When the power cord is disconnected from the AC outlet, the SDI circuit operation is interrupted and thus the signal is not output from the Active Through terminal.

TROUBLESHOOTING

Solutions to common problems related to your monitor are described here. If none of the solutions presented here solves the problem, unplug the monitor and consult a JVC-authorized dealer or service center for assistance.

Problems	Points to be checked	Measures
No power supply.	Is the power plug loosened or disconnected?	Firmly insert the power plug.
No picture with the power on.	Is the video signal output from the connected component?	Set the connected component correctly.
	Is the input signal selected properly?	Select the required video signal input with the VIDEO A/B switch. (See page 4.) When INPUT B is selected, select the input terminal (VIDEO or SDI) with the VIDEO/SDI switch. (See pages 6, 8, 9.)
	Is the video cable disconnected?	Connect the video signal cable firmly. (See page 8 and 9.)
No sound.	Is the audio signal output from the connected component?	Set the connected component correctly.
	Is the volume output set at the minimum position?	Adjust the VOLUME control. (See page 4.)
	Is the audio cable disconnected?	Connect the audio signal cable firmly. (See page 8 and 9.)
Shaking picture.	Is the monitor close to a device generating a strong magnetic field (motor, transformer, etc.)?	Move the device away from the monitor until the picture stabilizes.
No color, wrong color, or dark picture.	Is the NTSC/525 / PAL/625 switch selected properly?	Select the correct color system and vertical deflection frequency with the NTSC/525 / PAL/625 switch. (See page 4.)
	Is the COLOR OFF switch set properly?	Set the COLOR OFF switch to the OFF (■) position. (See page 5.)
	Has the picture control setting (CONTRAST, BRIGHT, CHROMA or PHASE) been changed?	Set each picture control to the standard setting (center) position. (See page 4.)
Unnatural, irregularly colored, or distorted picture.	Is the monitor close to a speaker, magnet or any other device generating a strong magnetic field?	Move the device away from the monitor and turn the monitor's power off. Wait at least 30 minutes, then turn the power on again.
Dark stripes at the top and bottom of the screen, picture vertically squeezed.	Is the aspect ratio set to 16:9 (▂)?	Set the 4:3/16:9 switch to the normal 4:3 (■) position. (See page 4.)
	Is the NTSC/525 / PAL/625 switch selected properly?	Select the correct color system and vertical deflection frequency with the NTSC/525 / PAL/625 switch. (See page 4.)
The overall picture size is too small.	Is the UNDER SCAN switch set to "Under scan screen (▂)"?	Set the UNDER SCAN switch to the normal "Over scan screen (■)" position. (See page 5.)
Picture flows.	Is the EXT SYNC switch set properly?	Set the EXT SYNC switch properly. (See page 4.)
Front panel switches do not function.	Is the monitor being controlled by an external control unit via the TALLY/REMOTE terminal?	Set the control on the external unit of the same function as that on the monitor's front panel to the OFF (■) position, or disconnect the unit from the TALLY/REMOTE terminal. (See pages 4, 5, 7 – 9.)
External control not possible with the unit connected to TALLY/ REMOTE terminal.	Is the switch on the front panel of the same function as that on the external control unit to the ON (▂) position?	Set the control on the front panel of the same function as that on the external control unit to the OFF (■) position. (See pages 4, 5, 7 – 9.)

The following are not malfunctions:

- When a bright still image (such as a white cloth) is displayed for a long period, it may appear to be colored. This is due to the structure of the cathode ray tube and will be deleted when another image is displayed.
- You experience a mild electric shock when you touch the picture tube. This phenomenon is due to a normal buildup of static electricity on the CRT and is not harmful.
- The monitor emits a strange sound when the room temperature changes suddenly. This is only a problem if an abnormality appears on the screen as well.
- If two or more monitors are operated next to each other, their images may shake or be distorted. This phenomenon is due to mutual interference; it is not a malfunction. Move the monitors away from each other until the interference disappears or turn the power off on any monitor that is not being used.

SPECIFICATIONS

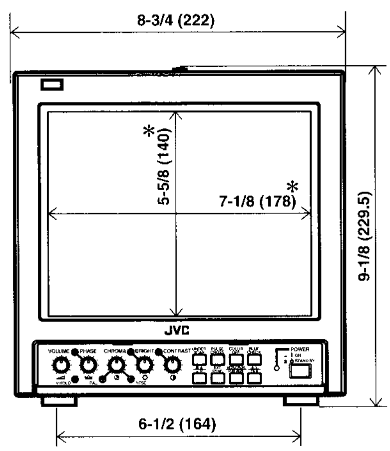
- **Type** : Color video monitor
- **Color system** : NTSC, PAL
- **Picture tube** : 9" measured diagonally, flat-square type, 90° deflection, in-line gun, vertical line trio type (phospher stripe pitch 0.5 mm)
- **Effective screen size** : Width 6-7/8" (175 mm)
  Height 5-3/8" (137 mm)
  Diagonal 8-3/4" (222 mm)
- **Scanning frequency** : (H) 15.734 kHz (NTSC)
  15.625 kHz (PAL)
  (V) 59.94 Hz (NTSC)
  50 Hz (PAL)
- **Horizontal resolution** : 280 TV lines or more (SDI input mode)
- **Input terminals**
  - **VIDEO A** : Composite video:
    1 line, BNC connector x 2,
    1 V(p-p), 75 Ω, negative sync
    (bridge connection possible, auto termination)
  - **VIDEO B** : Composite video:
    1 line, BNC connector x 2,
    1 V(p-p), 75 Ω negative sync
    (bridge connection possible, auto termination)
  - **SDI** : Component serial digital (SMPTE 259M-compliant)
    IN : BNC connector x 1
    Active through out : BNC connector x 1
  - **AUDIO A** : 1 line (monaural), RCA pin x 2
    0.5 V(rms), high-impedance
    (bridge connection possible)
  - **AUDIO B** : 1 line (monaural), RCA pin x 2
    0.5 V(rms), high-impedance
    (bridge connection possible)
- **External sync** : Composite sync
  1 line, BNC connector x 2
  0.3 V(p-p) – 4 V(p-p), 75 Ω
  (bridge connection possible, auto termination)
- **Tally/Remote** : 1 line, DIN 8-pin x 1
- **Audio power output** : 1 W (monaural)
- **Built-in speaker** : 3-3/16" (8 cm) round x 1
  impedance of 8 Ω
- **Environmental conditions** : Operation temperature:
  0 °C – 40 °C (32 °F – 104 °F)
  Operation humidity:
  20 % – 80 % (non-condensing)
- **Power requirements** : 120 V AC, 50 Hz/60 Hz
- **Power consumption** : 0.83A (120 V AC)
- **Dimensions** : Width 8-3/4" (222 mm)
  Height 9-1/8" (229.5 mm)
  Depth 14-5/8" (370 mm)
- **Weight** : 17.4 lbs (7.9 kg)
- **Accessory** : AC power cord
  [7.9 ft (2.4 m)] x 1

** Illustrations used in this manual are for explanatory purposes only. The appearance of the actual product may differ slightly.*
** E. & O. E. Design and specifications subject to change without notice.*

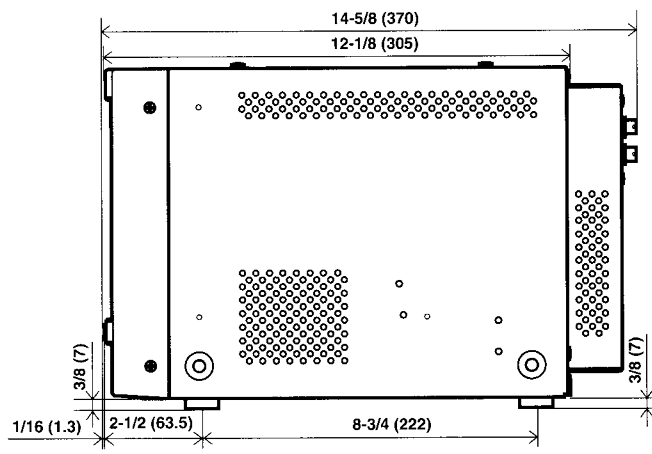
Dimensions

Unit : inch (mm)

< Front View >



< Side View >



* Asterisks (*) are used to indicate front panel dimensions.

TM-950DU COLOR VIDEO MONITOR

JVC®

JVC PROFESSIONAL PRODUCTS COMPANY
DIVISION OF US JVC CORP.
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DP3053

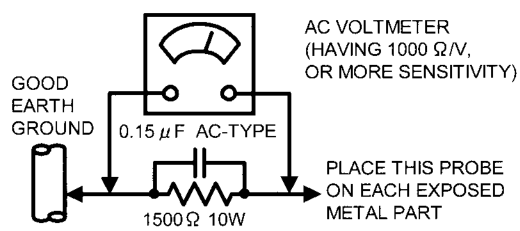
SAFETY PRECAUTIONS

1. The design of this product contains special hardware, many circuits and components specially for safety purposes. For continued protection, no changes should be made to the original design unless authorized in writing by the manufacturer. Replacement parts must be identical to those used in the original circuits. Service should be performed by qualified personnel only.
2. Alterations of the design or circuitry of the products should not be made. Any design alterations or additions will void the manufacturer's warranty and will further relieve the manufacturer of responsibility for personal injury or property damage resulting therefrom.
3. Many electrical and mechanical parts in the products have special safety-related characteristics. These characteristics are often not evident from visual inspection nor can the protection afforded by them necessarily be obtained by using replacement components rated for higher voltage, wattage, etc. Replacement parts which have these special safety characteristics are identified in the parts list of Service manual. **Electrical components having such features are identified by shading on the schematics and by (⚠) on the parts list in Service manual.** The use of a substitute replacement which does not have the same safety characteristics as the recommended replacement part shown in the parts list of Service manual may cause shock, fire, or other hazards.
4. **Use isolation transformer when hot chassis.**
   The chassis and any sub-chassis contained in some products are connected to one side of the AC power line. An isolation transformer of adequate capacity should be inserted between the product and the AC power supply point while performing any service on some products when the HOT chassis is exposed.
5. **Don't short between the LIVE side ground and ISOLATED (NEUTRAL) side ground or EARTH side ground when repairing.**
   Some model's power circuit is partly different in the GND. The difference of the GND is shown by the LIVE : (⊥) side GND, the ISOLATED(NEUTRAL) : (⏊) side GND and EARTH : (⏚) side GND. Don't short between the LIVE side GND and ISOLATED(NEUTRAL) side GND or EARTH side GND and never measure with a measuring apparatus (oscilloscope etc.) the LIVE side GND and ISOLATED(NEUTRAL) side GND or EARTH side GND at the same time.
   If above note will not be kept, a fuse or any parts will be broken.
6. If any repair has been made to the chassis, it is recommended that the B1 setting should be checked or adjusted (See ADJUSTMENT OF B1 POWER SUPPLY).
7. The high voltage applied to the picture tube must conform with that specified in Service manual. Excessive high voltage can cause an increase in X-Ray emission, arcing and possible component damage, therefore operation under excessive high voltage conditions should be kept to a minimum, or should be prevented. If severe arcing occurs, remove the AC power immediately and determine the cause by visual inspection (incorrect installation, cracked or melted high voltage harness, poor soldering, etc.). To maintain the proper minimum level of soft X-Ray emission, components in the high voltage circuitry including the picture tube must be the exact replacements or alternatives approved by the manufacturer of the complete product.
8. Do not check high voltage by drawing an arc. Use a high voltage meter or a high voltage probe with a VTVM. Discharge the picture tube before attempting meter connection, by connecting a clip lead to the ground frame and connecting the other end of the lead through a 10kΩ 2W resistor to the anode button.
9. When service is required, observe the original lead dress. Extra precaution should be given to assure correct lead dress in the high voltage circuit area. Where a short circuit has occurred, those components that indicate evidence of overheating should be replaced. Always use the manufacturer's replacement components.
10. **Isolation Check**
    (Safety for Electrical Shock Hazard)
    After re-assembling the product, always perform an isolation check on the exposed metal parts of the cabinet (antenna terminals, video/audio input and output terminals, Control knobs, metal cabinet, screw heads, earphone jack, control shafts, etc.) to be sure the product is safe to operate without danger of electrical shock.

(1) **Dielectric Strength Test**
The isolation between the AC primary circuit and all metal parts exposed to the user, particularly any exposed metal part having a return path to the chassis should withstand a voltage of 1100V AC (r.m.s.) for a period of one second.
(. . . . Withstand a voltage of 1100V AC (r.m.s.) to an appliance rated up to 120V, and 3000V AC (r.m.s.) to an appliance rated 200V or more, for a period of one second.)
This method of test requires a test equipment not generally found in the service trade.

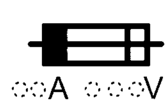
(2) **Leakage Current Check**
Plug the AC line cord directly into the AC outlet (do not use a line isolation transformer during this check.). Using a "Leakage Current Tester", measure the leakage current from each exposed metal part of the cabinet, particularly any exposed metal part having a return path to the chassis, to a known good earth ground (water pipe, etc.). Any leakage current must not exceed 0.5mA AC (r.m.s.).
However, in tropical area, this must not exceed 0.2mA AC (r.m.s.).

● **Alternate Check Method**
Plug the AC line cord directly into the AC outlet (do not use a line isolation transformer during this check.). Use an AC voltmeter having 1000 ohms per volt or more sensitivity in the following manner. Connect a 1500Ω 10W resistor paralleled by a 0.15μF AC-type capacitor between an exposed metal part and a known good earth ground (water pipe, etc.). Measure the AC voltage across the resistor with the AC voltmeter. Move the resistor connection to each exposed metal part, particularly any exposed metal part having a return path to the chassis, and measure the AC voltage across the resistor. Now, reverse the plug in the AC outlet and repeat each measurement. Any voltage measured must not exceed 0.75V AC (r.m.s.). This corresponds to 0.5mA AC (r.m.s.).
However, in tropical area, this must not exceed 0.3V AC (r.m.s.). This corresponds to 0.2mA AC (r.m.s.).

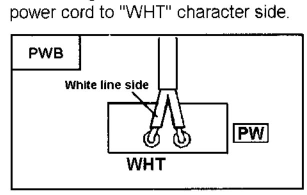


11. **High voltage hold down circuit check.**
    After repair of the high voltage hold down circuit, this circuit shall be checked to operate correctly.
    See item "**How to check the high voltage hold down circuit**".

This mark shows a fast operating fuse, the letters indicated below show the rating.



POWER CORD REPLACEMENT WARNING.
Connecting the white line side of power cord to "WHT" character side.



SPECIFIC SERVICE INSTRUCTIONS

DISASSEMBLE PROCEDURE

REMOVING THE TOP COVER

1. Unplug the power plug from wall outlet.
2. As shown in Fig.2, remove the **4** screws marked Ⓐ .
3. In the same way, remove the **4** screws marked Ⓑ .
4. Slightly spread the bottom of the top cover, and pull the top cover reward. Raise the top cover upward to remove it.

REMOVING THE COVER, POWER UNIT AND SDI UNIT

- After removing the TOP COVER.

1. As shown in Fig.2, remove the **6** screws marked Ⓒ .
2. Withdraw the COVER toward you.
3. As shown in Fig.2, remove the **2** screws marked Ⓓ and **2** screws marked Ⓔ , then remove the POWER UNIT.
   (If necessary, take off the wire clamp and connectors, etc..)
4. As shown in Fig.2, remove the screw marked Ⓕ , then remove the SDI UNIT.

REMOVING THE REAR PANEL AND TERMINAL BRACKET

- After removing the TOP COVER, COVER, POWER UNIT and SDI UNIT.

1. As shown in Fig 2, remove **4** screws marked Ⓖ .
2. Slightly spread the top portion of the rear panel to reward, and raise it upward. Then remove the REAR PANEL.
   (If necessary, take off the wire clamp and connectors, etc..)
3. As shown in Fig.2, remove the **2** screws marked Ⓗ , **5** screws marked Ⓘ and **1** screw marked Ⓙ and Ⓚ .
4. Remove the screw marked Ⓡ , and remove the earth wire.
5. Slightly shift the TERMINAL BRACKET rearward and raise it to remove.

REMOVING THE GUARD SHEET

- After removing the TOP COVER, REAR PANEL and TERMINAL BRACKET.

1. As shown in Fig.2, remove the rivet marked Ⓛ .
2. As shown in Fig.2, pull up the GUARD SHEET, then remove it.

REMOVING THE BOTTOM COVER

- After removing the TOP COVER, REAR PANEL and TERMINAL BRACKET.

1. Set the unit front surface of the CRT downward, and turn the bottom cover toward you. At this time, be sure not to damage the front surface of the CRT and FRONT PANEL.
2. As shown in Fig.2, remove the **2** screws marked Ⓜ .
3. Slightly spread the bottom cover toward you, and pull it to upward. Then be able to remove the BOTTOM COVER.

REMOVING THE CHASSIS BASE

- After removing the COVERS and PANELS described in above.

1. As shown in Fig.1, slightly raise the claws marked Ⓝ in the direction of arrow marked Ⓟ .
2. Then pull the chassis base in the direction of arrow marked Ⓠ , then remove it.

REMOVING THE SPEAKER

- After removing the TOP COVER.

1. Remove the SIGNAL PWB by disconnecting the connector.
2. Remove the speaker code from the speaker.
3. Slightly raise the claw with the speaker holder, and pull up the speaker, then remove it.

CHECKING THE PW BOARD

To check the solder side of the PW Board.

1) Remove the chassis.
2) Erect the chassis vertically so that you can easily check the solder side of the PW Board.

[CAUTION]

- When erecting the chassis, be careful so that there will be no contacting with other PW Board.
- Before turning on power, make sure that the wire connector is properly connected.
- When conducting a check with power supplied, be sure to confirm that the CRT EARTH WIRE (BRAIDED ASS'Y) is connected to the CRT SOCKET PW board.

WIRE CLAMPING AND CABLE TYING

1. Be sure to clamp the wire.
2. Never remove the cable tie used for tying the wires together.
   Should it be inadvertently removed, be sure to tie the wires with a new cable tie.

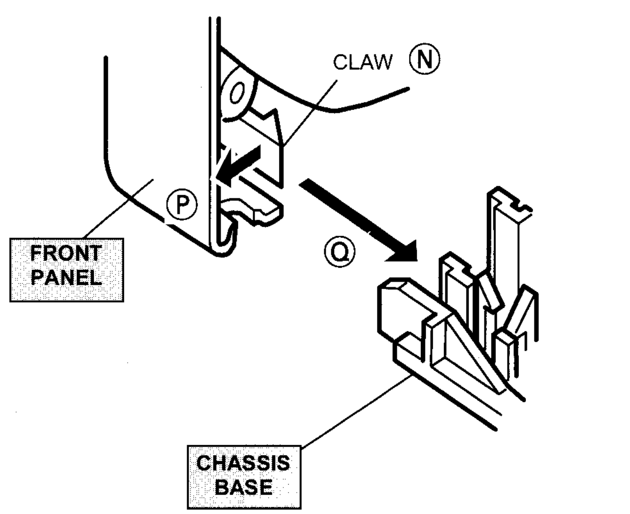


Fig.1

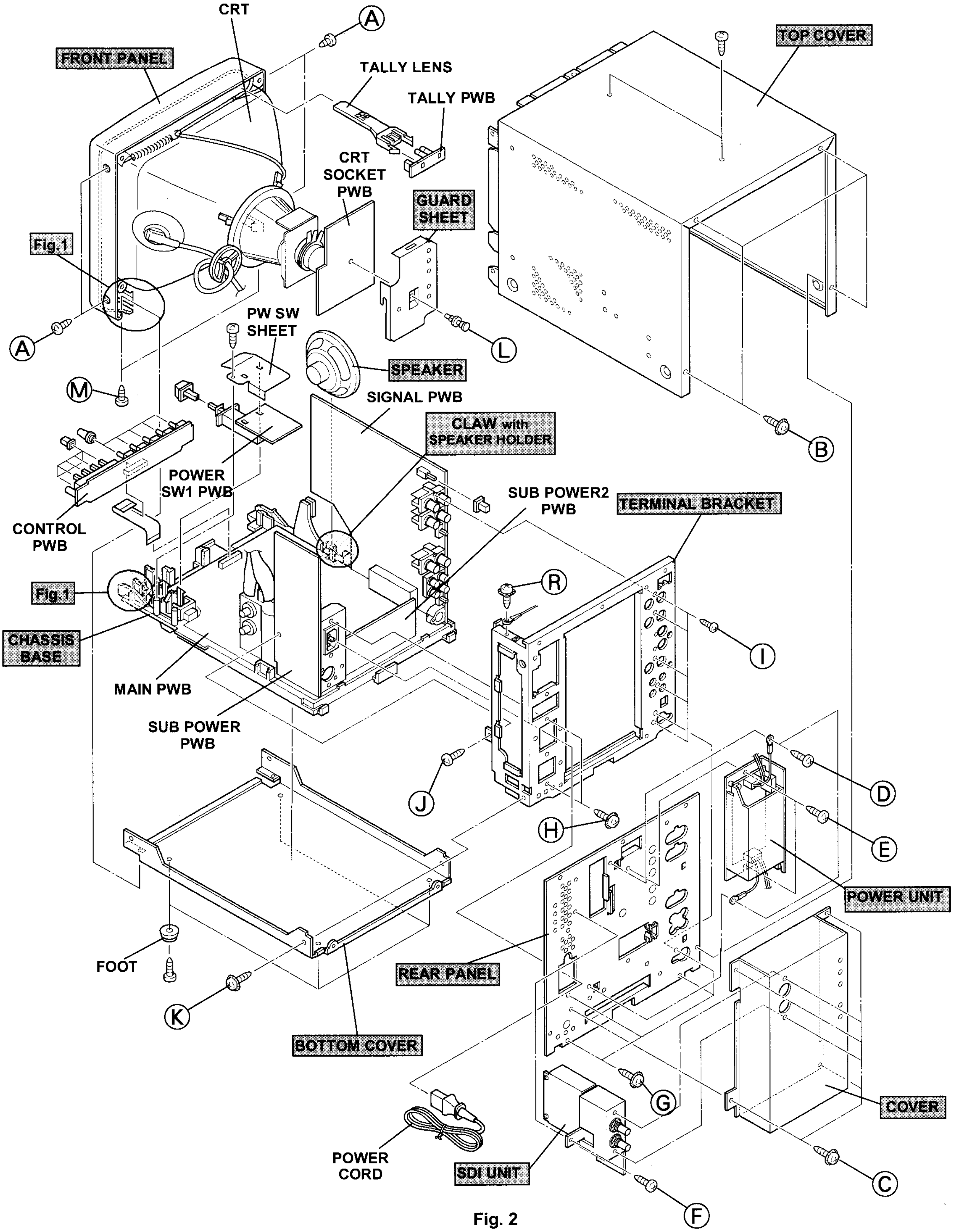

CRT
A
FRONT PANEL
TALLY LENS
TALLY PWB
TOP COVER
CRT
SOCKET
PWB
GUARD
SHEET
Fig.1
A
PW SW
SHEET
L
SPEAKER
M
SIGNAL PWB
CLAW with
SPEAKER HOLDER
B
POWER
SW1 PWB
SUB POWER2
PWB
TERMINAL BRACKET
CONTROL
PWB
R
Fig.1
I
CHASSIS
BASE
MAIN PWB
SUB POWER
PWB
D
J
H
E
POWER UNIT
FOOT
REAR PANEL
K
BOTTOM COVER
G
COVER
POWER
CORD
SDI UNIT
C
F

Fig. 2

SERVICE ADJUSTMENTS

BEFORE STARTING SERVICE ADJUSTMENT

1. The adjustment is made on the basis of the initial setting values. The setting values which adjust the screen to its optimum condition may differ from the initial setting values.
2. Make sure that connection is correctly made to AC power source.
3. Turn on the power of the unit and equipment before use, and start the adjustment procedures after waiting at least 30 minuets.
4. Unless otherwise specified, prepare the most suitable reception or input signal for adjustment.
5. Never touch any adjustment parts, which are not specified in the list for this adjustment variable resistors, transforms, condensers, etc.
6. Preparation for adjustment (presetting):
   Unless otherwise specified in the adjustment instructions, preset the following functions.

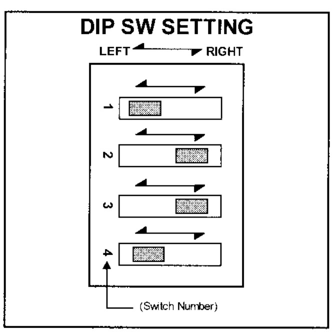
ADJUSTMENT SETTINGS

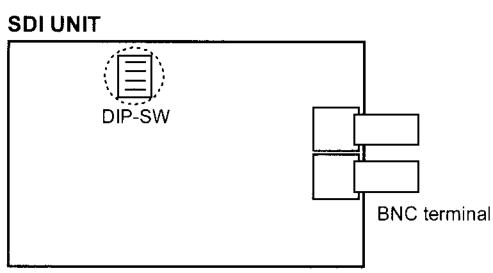
USER SETTING CONDITION

FUNCTION		SETTING
FRONT CONTROLS	POWER	STAND-BY
	CONTRAST	CENTER click position
	BRIGHT	CENTER click position
	CHROMA	CENTER click position
	PHASE	CENTER click position
	VOLUME	CENTER
FRONT SW	UNDER SCAN	OFF
	PULSE CROSS	OFF
	COLOR OFF	OFF
	BLUE CHECK	OFF
	INPUT A / B	INPUT A
	EXT SYNC	OFF
	NTSC/525 / PAL/625	NTSC/525
	4:3 / 16:9	4:3
REAR SW	AFC	NORMAL
	SETUP	OFF
	VIDEO / SDI	SDI

SETTING OF DIP SWITCH ON SDI UNIT

- It must not change the position of DIP-SW of SDI UNIT (FIXED).

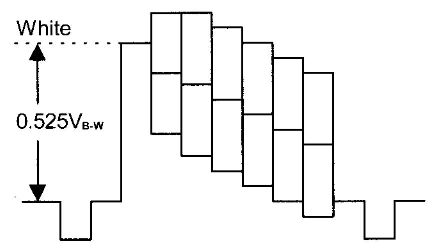




MEASURING INSTRUMENT AND FIXTURES

1. DC voltmeter (or digital voltmeter)
2. Color temperature meter
3. Oscilloscope
4. Signal generator (Pattern generator) [PAL / NTSC]

COLOR BAR VIDEO COMPOSITE SIGNAL (75% SETUP)



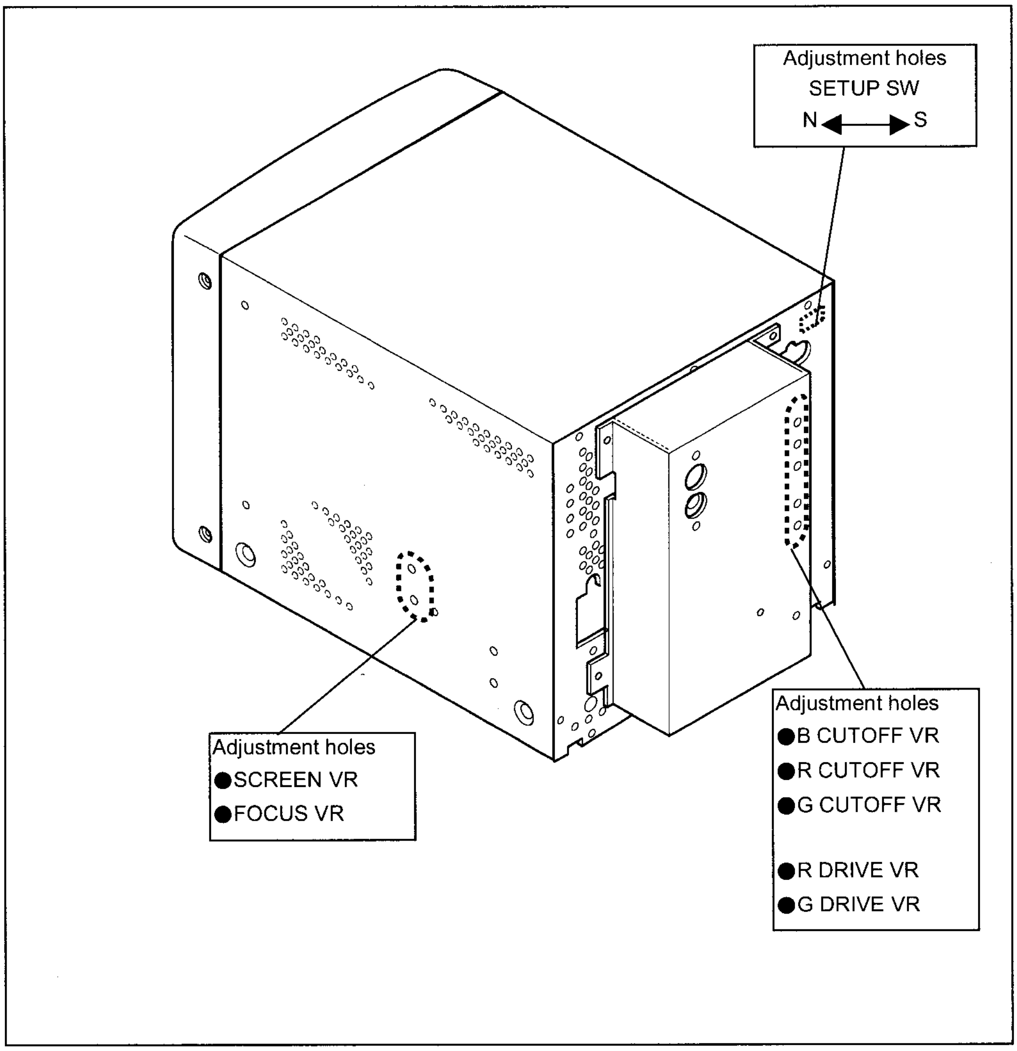
ADJUSTMENT ITEMS

- B1 power supply check
- FOCUS adjustment
- Horizontal and vertical hold adjustment
- DEFLECTION circuit adjustment
- VIDEO / CHROMA circuit adjustment

ADJUSTMENT LOCATIONS I

ADJUSTMENT HOLES

There are 2 ways of adjusting this unit. One is with the adjustment parts on the front panel, and the other is the adjustment parts which locates on the PW boards in this unit. The adjustment items given below tables able to adjust without disassemble the cabinet. Because the adjustment holes arrange on the top cover and rear panel. If you adjust with the adjustment holes, be sure to use the non-metallic driver. The metallic driver can cause the damage by shorting (Refer to the figure given right about adjustment holes).



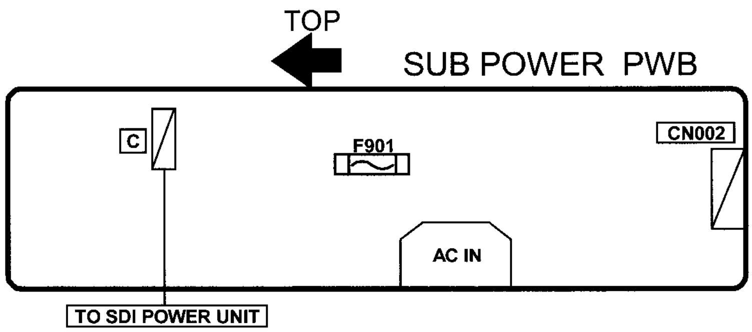
LOCATION OF THE ADJUSTMENT HOLES

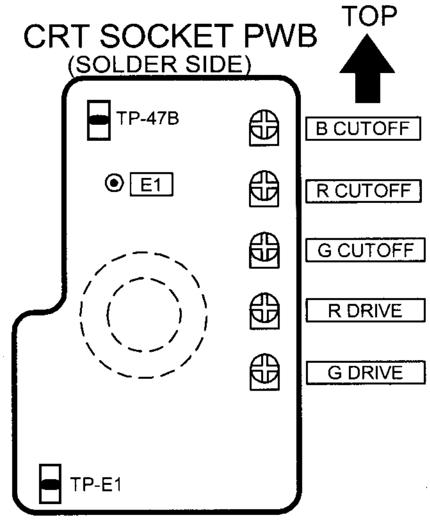
ADJUSTMENT PARTS	ADJUSTMENT	LOCATION
SCREEN VR (In HVT)	White Balance (Low light) adjustment	Right side of the TOP COVER
FOCUS VR (In HVT)	FOCUS adjustment	Right side of the TOP COVER
CUTOFF VR (R, G, B)	White Balance (Low light) adjustment	COVER
DRIVE VR (R, G)	White Balance (High light) adjustment	COVER
SETUP SWITCH	White Balance (Low light) adjustment	REAR PANEL

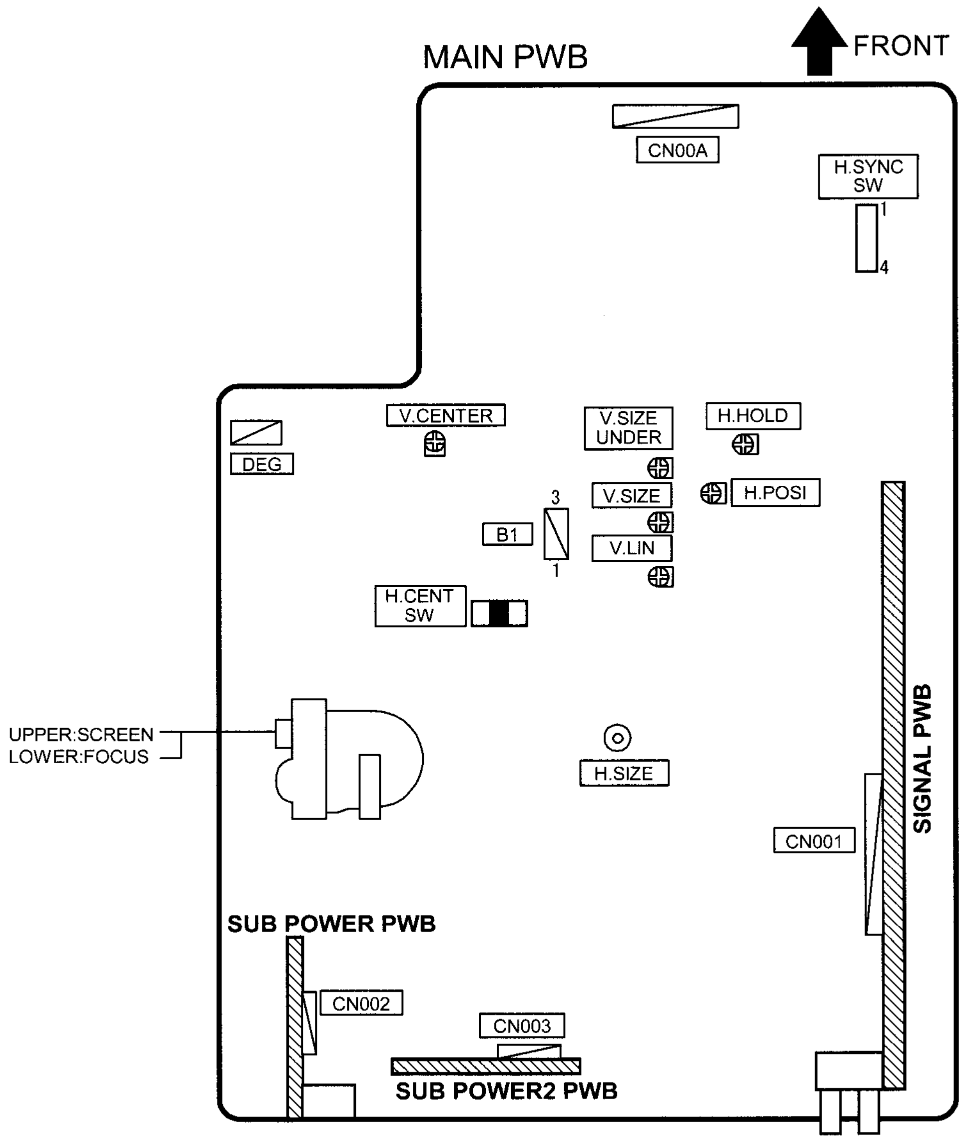
LOCATION OF THE ADJUSTMENT PARTS

PW BOARD NAME	ADJUSTMENT PARTS	PW BOARD NAME	ADJUSTMENT PARTS
MAIN PWB	H. SYNC SW H. HOLD H. POSITION H. CENTER SW H. SIZE V. CENTER V. SIZE UNDER V. SIZE V. LINE	**SIGNAL PWB**	APC SW1 APC SW2 NTSC COLOR SYNC PAL COLOR SYNC LISSAJOUS1 COMB A.D.J. NOTCH DL AMP DL PHASE SETUP SW S2 (Y, Y, GND) S3 (B-Y, R-Y, GND)
CRT SOCKET PWB	B CUTOFF R CUTOFF G CUTOFF R DRIVE G DRIVE TP-47B, TP-E		
CONTROL PWB	PHASE / SUB PHASE CHROMA / SUB CHROMA(PAL&NTSC) BRIGHT / SUB BRIGHT CONTRAST / SUB CONTRAST V. HOLD UNDER SCAN PULSE CROSS COLOR OFF BLUE CHECK INPUT A / B EXT SYNC NTSC/625 / PAL/625 4:3 / 16:9	**SUB POWER PWB**	F901(FUSE)

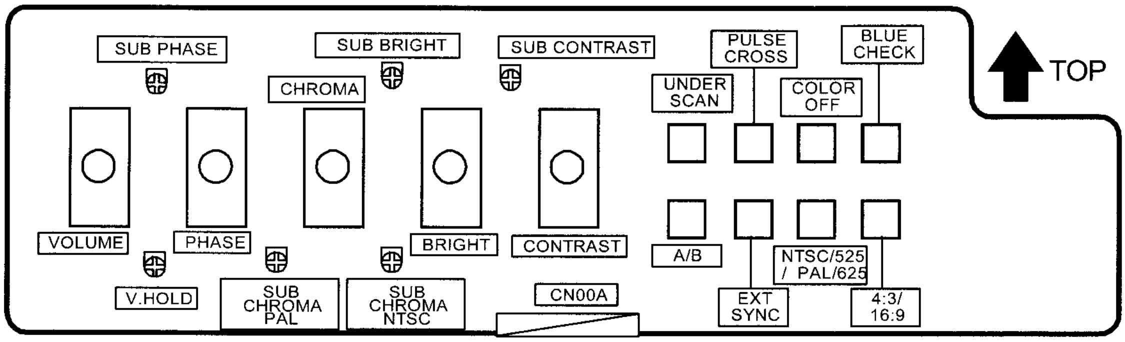
ADJUSTMENT LOCATIONS Ⅱ



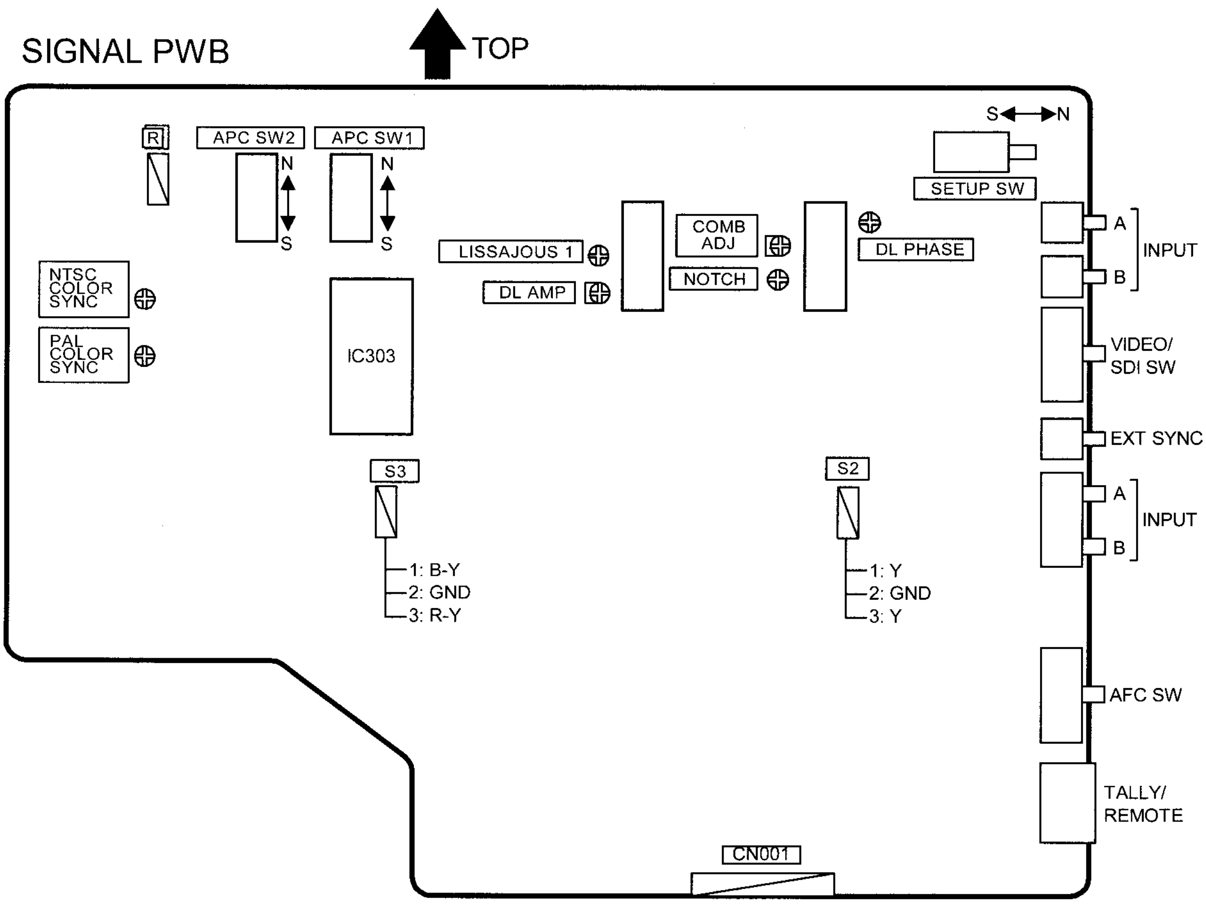




CONTROL PWB



SIGNAL PWB

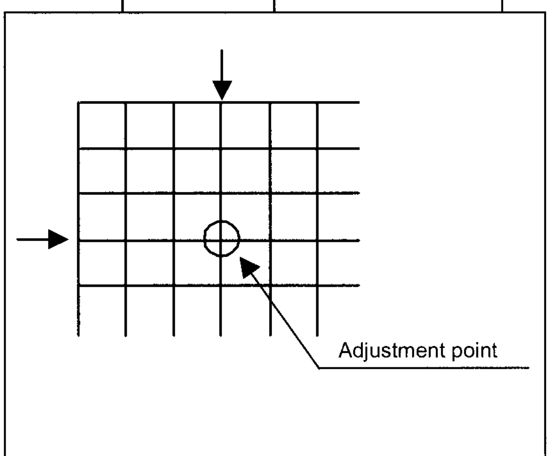


B1 POWER SUPPLY CHECK

Item	Measuring instrument	Test point	Adjustment part	Description
Check of B1 power supply (AC input)	Signal generator DC voltmeter	TP-B1 TP-E(GND ⏚) [B1 connector 1 and 3 pin on MAIN PWB]		1. Make sure that input voltage is 120V AC, 60Hz. 2. Input the all black signal (screen zero beam current condition). 3. Connect the DC volt meter to TP-B1 and TP-E(GND ⏚). 4. Confirm that the B1 voltage is $114.8V^{+1V}_{-1.3V}$.

FOCUS ADJUSTMENT

Item	Measuring instrument	Test point	Adjustment part	Description
Adjustment of FOCUS	Signal generator		FOCUS VR [In HVT]	● Set the BRIGHT and CONTRAST volumes to the center click. 1. Input the cross-hatch signal. 2. By turning the FOCUS VR, adjust the cross-hatch vertical and horizontal lines becomes thinnest.

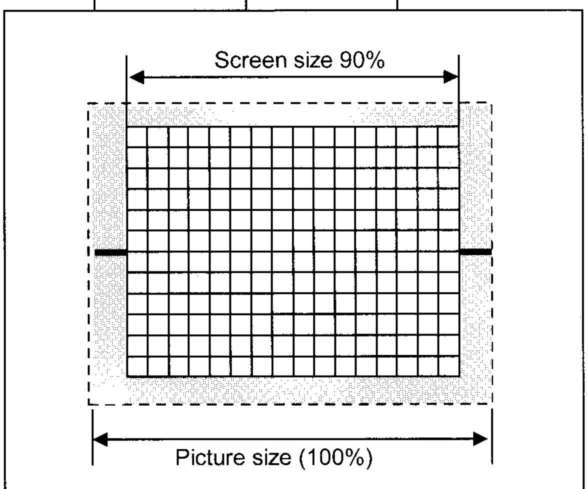


HORIZONTAL AND VERTICAL HOLD ADJUSTMENT

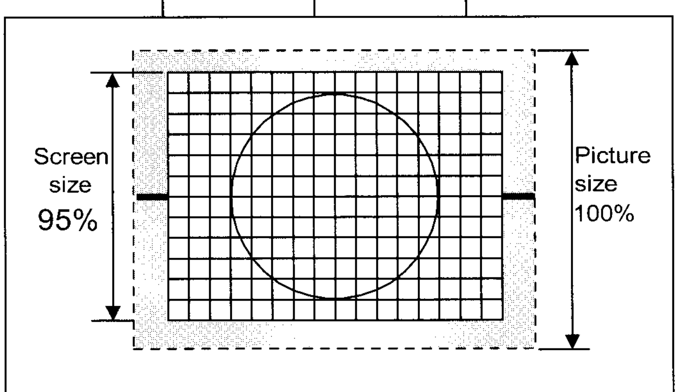
Item	Measuring instrument	Test point	Adjustment part	Description
Adjustment of H.HOLD	**Signal generator**		**H.SYNC SW** **H.HOLD VR** **[MAIN PWB]**	1. Input the mono-scope pattern signal. 2. Switch the H.SYNC SW to the "4" side. 3. Turn the H.HOLD VR so that the mono-scope pattern picture becomes fine from stripe pattern in the screen. 4. Return the H.SYNC SW to the "1" side. 5. Make sure that the input picture can display on the screen normally without releasing the external sync lock when switching the input signal A to B, or reverse. 6. Carry out the adjustment by repeating the step 2 to 5 above, if necessary.
Adjustment of V.HOLD	**Signal generator**		**NTSC/525 / PAL/625 SW** **4:3/16:9 SW** **[FRONT PANEL]** **V.HOLD VR** **[CONTROL PWB]**	1. Input the NTSC full field color bar signal. 2. Switch the NTSC/525 / PAL/625 switch to the "PAL/625" side, and 4:3/16:9 switch to the "16:9" side. 3. At this time, confirm that the screen color becomes off, and screen vertical size becomes small. 4. Turn the V.HOLD VR to clockwise from left end position (minimum value) so that the vertical synchronization becomes fine. 5. Return the NTSC/525 / PAL/625 and 4:3/16:9 switch to the initial position. 6. Confirm that the screen synchronization not to released. ●Readjust the V.HOLD VR finely, whenever input the signals.

DEFLECTION CIRCUIT ADJUSTMENT

Item	Measuring instrument	Test point	Adjustment part	Description
Adjustment of H.SIZE H.CENTER	**Signal generator**		**UNDER SCAN SW** **PULSE CROSS SW** **BRIGHT VR** **CONTRAST VR** **[FRONT PANEL]** **H.CENT SW** **H.POSI VR** **H.SIZE COIL** **[MAIN PWB]**	●It must done the adjustment of the BRIGHT and CONTRAST. 1. Input the NTSC cross-hatch pattern signal. 2. Turn on the UNDER SCAN SW and the PULSE CROSS SW. 3. Switch the H.CENT SW so that the horizontal picture center agree with the CRT screen center as possible. 4. At this time, input the PAL cross-hatch pattern signal. In the same way, confirm that the horizontal center generally agree with the CRT screen center. 5. Return the UNDER SCAN SW and PULSE CROSS SW to off. 6. Adjust the H.POSI VR so that the horizontal center agree with the CRT screen center. 7. Then adjust the H.SIZE COIL, the horizontal screen size becomes 90%. 8. Turn the UNDER SCAN SW to on. 9. Turn the BRIGHT VR to the maximum, and CONTRAST VR to the minimum. 10. Adjust the H.POSI VR so that the horizontal center agree with the CRT screen center. 11. Return the UNDER SCAN SW to off. And return the BRIGHT and CONTRAST VR to the center click position. 12. Make sure that the picture horizontal center positioned within 3mm from CRT screen center. If not obtain, readjust above steps.

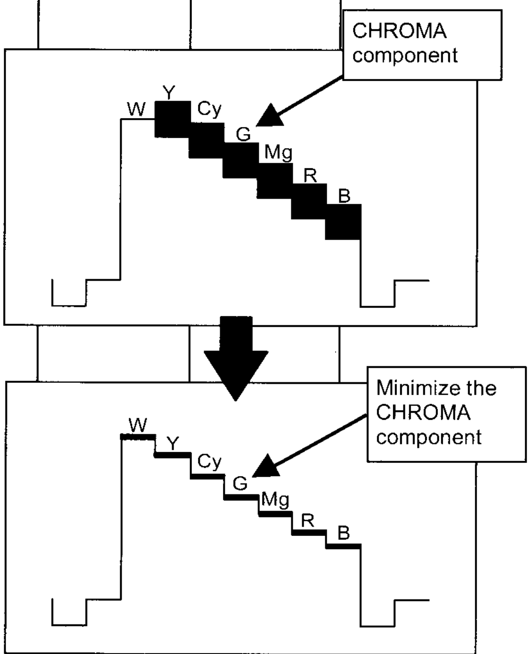


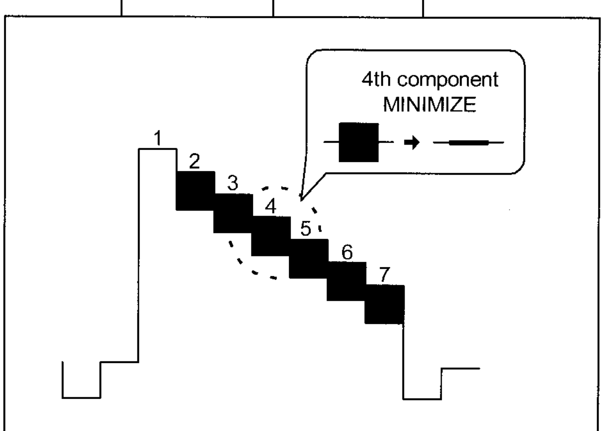
Item	Measuring instrument	Test point	Adjustment part	Description
Adjustment of V.SIZE V.CENTER V.LINEARITY	**Signal generator**		**V.LIN VR** **V.CENTER VR** **V.SIZE VR** **V.SIZE UNDER VR** **[MAIN PWB]** **UNDER SCAN SW** **[FRONT PANEL]**	1. Input the NTSC cross-hatch circle pattern signal. 2. Adjust the V.LIN VR so that the vertical linearity becomes nearly good. 3. Adjust the V.CENTER VR so that the vertical picture center agree with the CRT screen center. 4. Adjust the V.SIZE VR so that the vertical screen size becomes 95%. 5. If necessary, readjust the vertical linearity with the V.LIN VR. 6. Turn on the UNDER SCAN SW. 7. While turning the V.SIZE VR, adjust the circle of the cross-hatch circle pattern so that it becomes a perfect circle. 8. Input the PAL cross-hatch circle pattern signal. 9. Turn off the UNDER SCAN SW. 10. Confirm that the vertical screen size is 92%-97%. 11. Confirm that the circle pattern is still keeping a perfect circle when turn on the UNDER SCAN SW.



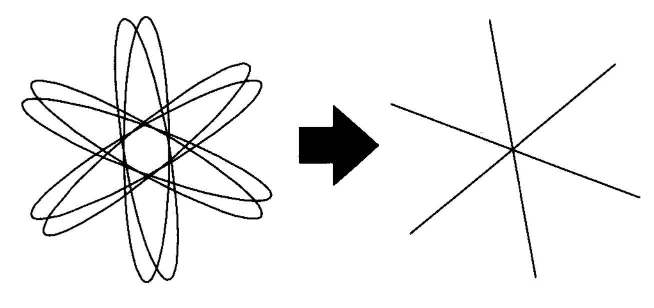
VIDEO/CHROMA CIRCUIT ADJUSTMNET

Item	Measuring instrument	Test point	Adjustment part	Description
Notch circuit adjustment	**Signal generator** **Oscilloscope**	**S2 connector** **1 or 3 pin: (Y)** **2pin: (GND⏚)** **[SIGNAL PWB]**	**NTSC/525 / PAL/625 SW** **[FRONT PANEL]** **NOTCH VR** **[SIGNAL PWB]**	1. Input the PAL color bar signal. 2. Turn the NTSC/525 / PAL/625 SW to the PAL/625 side. 3. Connect the oscilloscope probe to the S2 connector 1 or 3 pin and 2pin(GND). 4. Refer to the left figure, adjust the NOTCH VR to minimize the chroma component on the waveform.
COMB Filter Adjustment	**Signal generator** **Oscilloscope**	**S2 connector** **1 or 3 pin: (Y)** **2pin: (GND⏚)** **[SIGNAL PWB]**	**NTSC/525 / PAL/625 SW** **[FRONT PANEL]** **DL PHASE TRANSF.** **COMB ADJ VR** **[SIGNAL PWB]**	1. Input the NTSC color bar signal. 2. Turn the NTSC/525 / PAL/625 SW to the NTSC/525 side. 3. Connect the oscilloscope probe to the S2 connector 1 or 3 pin and 2pin(GND). 4. Enlarge the waveform on oscilloscope to easily watch the waveform of the 4th color component which is superimposed the 3.58MHz component. 5. Adjust the DL PHASE TRANSF. to minimize the 3.58MHz signal component on the waveform. 6. As same way, adjust the COMB ADJ VR to minimize the signal 3.58MHz component on the waveform. 7. Repeat the same steps above 5 and 6, to minimize the 3.58MHz signal component on the waveform.





Item	Measuring instrument	Test point	Adjustment part	Description
COLOR SYNC Adjustment	Signal generator		NTSC/525 / PAL/625 SW [FRONT PANEL] APC SW1 APC SW2 NTSC COLOR SYNC TRIM. [SIGNAL PWB]	1. Input the NTSC color bar signal. 2. Turn the NTSC/525 / PAL/625 SW to the NTSC/525 side. 3. Turn the APC SW1 and APC SW2 to the service side (S side). 4. Adjust the NTSC COLOR SYNC trimmer condenser so that the color bar picture in the screen becomes fine from stripe pattern. 5. Return the APC SW1 and APC SW2 to the normal side (N side). 6. Confirm that the color bar signal can display in the screen normally without releasing the synchronization when switching the input signal A to B, or reverse.
PAL APC Adjustment	Signal generator Oscilloscope	S3 connector 1 pin(B-Y) 3 pin(R-Y) 2pin:(GND⏚) [SIGNAL PWB]	NTSC/525 / PAL/625 SW [FRONT PANEL] APC SW1 APC SW2 DL AMP VR LISSAJ1 Transf. PAL COLOR SYNC TRIM. [SIGNAL PWB]	1. Input the PAL full color bar signal. 2. Turn the NTSC/525 / PAL/625 SW to the PAL/625 side. 3. Turn the APC SW1 and APC SW2 to the service side (S side). 4. Connect the oscilloscope probes to the S3 connector 1 and 3 pins. The setting of the oscilloscope to the dual sweep mode. 5. Refer to the Fig.1 given left, adjust the DL AMP VR and turn the LISSAJOUS1 Transf. to become the waveforms thin and fine. 6. Return the APC SW1 and APC SW2 to the NORMAL side (N side). 7. Input the PAL half color bar signal. 8. Adjust the PAL COLOR SYNC trimmer condenser so that the color gain of the element where given in the Fig.2 becomes minimum.


Fig.1

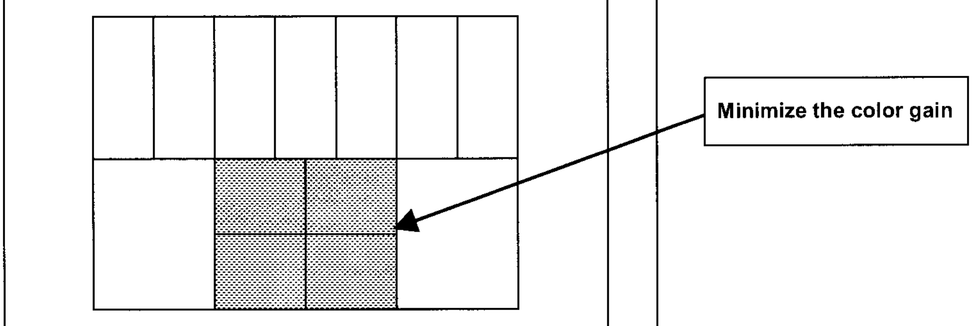


Fig.2

<table>
<tr><th>Item</th><th>Measuring instrument</th><th>Test point</th><th>Adjustment part</th><th>Description</th></tr>
<tr><td>WHITE BALANCE Adjustment (Low light)

[D6500K]</td><td>Signal generator</td><td></td><td>SETUP SW
[SIGNAL PWB]

R CUTOFF VR
G CUTOFF VR
B CUTOFF VR
[CRT SOCKET PWB]

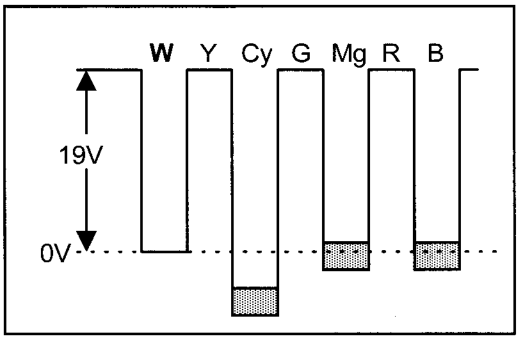
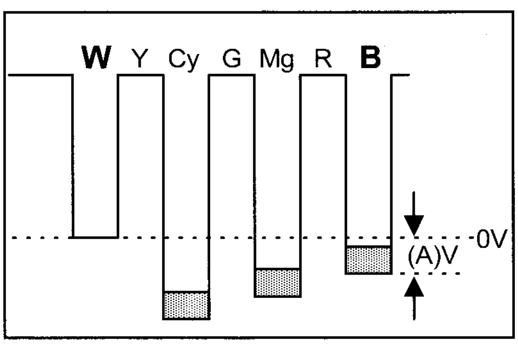
SCREEN VR
[HVT]</td><td>1. Input the mono-scope pattern signal.
2. Turn the SETUP SW to the service side (S side) to display the single horizontal line on the screen.
3. Turn the R, G, B CUTOFF VR fully counter-clockwise.
4. Turn the SCREEN VR fully counter-clockwise too.
5. Gradually turn the SCREEN VR to the clockwise until the single horizontal line appears faintly, which colored red, blue or green.
6. Turn the CUTOFF VR which color appears first time, to the clockwise slightly.
7. Then turn the 2 other color CUTOFF VRs so that the single horizontal line becomes white.
8. Return the SETUP SW to the normal side.
9. Confirm that there is no problem when input the video signal.</td></tr>
<tr><td>WHITE BALANCE Adjustment (High light)

[D6500K]</td><td>Signal generator

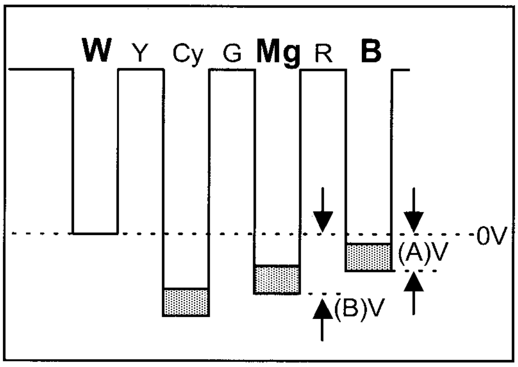
Color temperature meter</td><td></td><td>R DRIVE VR
G DRIVE VR
[CRT SOCKET PWB]

CONTRAST VR
BRIGHT VR
[FRONT PANEL]</td><td>1. Input the mono-scope pattern signal.
2. Measuring by the color temperature meter, adjust the R DRIVE VR and G DRIVE VR so that color temperature becomes the adjustment values given table below.
3. Turn the CONTRAST and BRIGHT VRs on the front panel, confirm that the fine white balance condition when low light to high light.

<table>
<tr><td rowspan="2">HIGH LIGHT
COLOR TEMP.
[D6500K]</td><td>x</td><td>y</td></tr>
<tr><td>0.313</td><td>0.329</td></tr>
</table>
</td></tr>
<tr><td>SUB BRIGHT Adjustment</td><td>Signal generator</td><td></td><td>SUB BRIGHT VR
[CONTROL PWB]</td><td>1. Input the color bar signal includes the 0% black component.
2. Adjust the SUB BRIGHT VR to eliminate illumination at the 0% black component.
3. Confirm that the Low light and High light adjustment, and if there are not optimum, readjust them again.</td></tr>
</table>

Item	Measuring instrument	Test point	Adjustment part	Description
SUB CONTRAST Adjustment	**Signal generator** **Oscilloscope**	**TP-47B** **TP-E(GND ⏚) [CRT SOCKET PWB]**	**SUB CONTRAST VR [CONTROL PWB]**	1. Input the color bar signal includes the 75% white component. 2. Connect the oscilloscope probes between TP-47B and TP-E. 3. Adjust the SUB CONTRAST VR to bring the value given in the left illustration to **+19V** (voltage difference between white and black).
				
SUB CHROMA Adjustment	**Signal generator** **Oscilloscope**	**TP-47B** **TP-E(GND ⏚) [CRT SOCKET PWB]**	**SUB CHROMA VR [CONTROL PWB]**	1. Input the PAL color bar signal. 2. Connect the oscilloscope probes between the TP-47B and TP-E. 3. Adjust the SUB CHROMA VR to bring the value given in the left illustration to **0V** (voltage difference between blue and white).
				

Item	Measuring instrument	Test point	Adjustment part	Description
SUB PHASE Adjustment	**Signal generator** **Oscilloscope**	**TP-47B** **TP-E(GND ⏚) [CRT SOCKET PWB]**	**BLUE CHECK SW [FRONT PANEL]** **SUB PHASE** **SUB CHROMA [CONTROL PWB]**	1. Input the NTSC color bar signal includes the 75% white component. 2. Turn on the BLUE CHECK SW. 3. Connect the oscilloscope probes between TP-47B and TP-E. 4. Adjust the SUB PHASE VR to bring the value (B)V given in the left illustration to **0V** (voltage difference between magenta and white). 5. Then adjust the SUB CHROMA VR to bring the value (A)V given in the left illustration to **0V** (voltage difference between blue and white). 6. Repeat the same steps above 4 and 5 to get the correct PHASE adjustment. 7. Turn off the BLUE CHECK SW.



REPLACEMENT OF CHIP COMPONENT

■ CAUTIONS

1. Avoid heating for more than 3 seconds.
2. Do not rub the electrodes and the resist parts of the pattern.
3. When removing a chip part, melt the solder adequately.
4. Do not reuse a chip part after removing it.

■ SOLDERING IRON

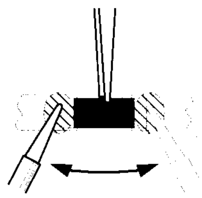
1. Use a high insulation soldering iron with a thin pointed end of it.
2. A 30w soldering iron is recommended for easily removing parts.

■ REPLACEMENT STEPS

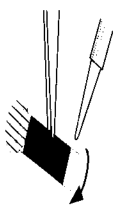
1. How to remove Chip parts

◆ Resistors, capacitors, etc

(1) As shown in the figure, push the part with tweezers and alternately melt the solder at each end.

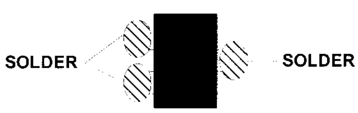


(2) Shift with tweezers and remove the chip part.

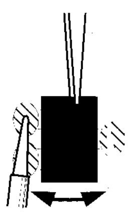


◆ Transistors, diodes, variable resistors, etc

(1) Apply extra solder to each lead.



(2) As shown in the figure, push the part with tweezers and alternately melt the solder at each lead. Shift and remove the chip part.

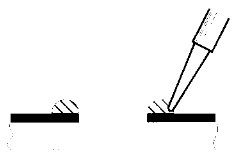


Note : After removing the part, remove remaining solder from the pattern.

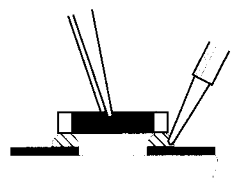
2. How to install Chip parts

◆ Resistors, capacitors, etc

(1) Apply solder to the pattern as indicated in the figure.

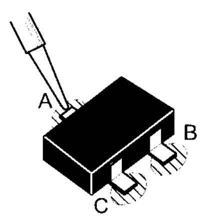


(2) Grasp the chip part with tweezers and place it on the solder. Then heat and melt the solder at both ends of the chip part.

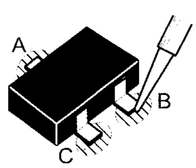


◆ Transistors, diodes, variable resistors, etc

(1) Apply solder to the pattern as indicated in the figure.
(2) Grasp the chip part with tweezers and place it on the solder.
(3) First solder lead **A** as indicated in the figure.



(4) Then solder leads **B** and **C**.



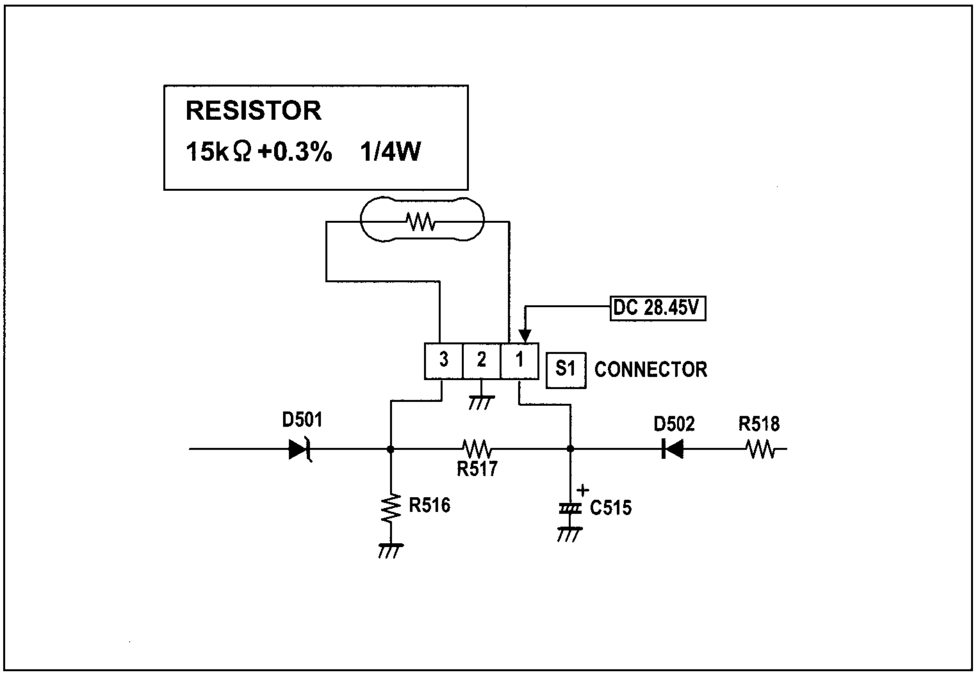
HOW TO CHECK THE HIGH VOLTAGE HOLD DOWN CIRCUIT

1. HIGH VOLTAGE HOLD DOWN CIRCUIT

After repairing the high voltage hold down circuit.
This circuit shall be checked to operate correctly.

2. CHECKING OF THE HIGH VOLTAGE HOLD DOWN CIRCUIT

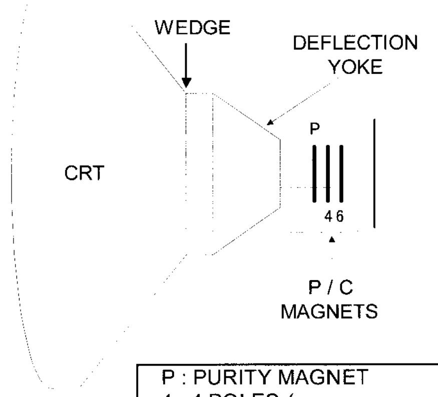
(1) Turn on the power switch.
(2) As shown in figure bellow, set the resistor 【S1】 connector between 1 and 3 pin.
(3) Make sure that the Video/Chroma control IC (IC303) stops to send the signals.
(4) Turn off the power switch.
(5) Remove the resistor.
(6) Again turn on the power switch, make sure that the normal picture is displayed on the screen.
(7) Supply the DC 28.45V power to the 【S1】 connector 1pin and 2pin (GND).
(8) In the same way, make sure that the Video/Chroma control IC (IC303) stops to send the signals.
(9) Turn off the power switch.
(10) Remove the DC voltage supply from the 【S1】 connector.
(11) Again turn on the power switch, make sure that the normal picture is displayed on the screen.



PURITY, CONVERGENCE

PURITY ADJUSTMENT

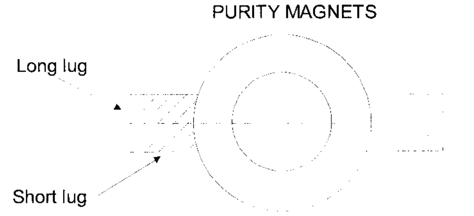
1. Demagnetize CRT with the demagnetizer.
2. Loosen the retainer screw of the deflection yoke.
3. Remove the wedges.
4. Input a green raster signal from the signal generator, and turn the screen to green raster.
5. Move the deflection yoke backward.
6. Bring the long lug of the purity magnets on the short lug and position them horizontally. (Fig.2)
7. Adjust the gap between two lugs so that the GREEN RASTER will come into the center of the screen. (Fig.3)
8. Move the deflection yoke forward, and fix the position of the deflection yoke so that the whole screen will become green.
9. Insert the wedge to the top side of the deflection yoke so that it will not move.
10. Input a crosshatch signal.
11. Verify that the screen is horizontal.
12. Input red and blue raster signals, and make sure that purity is properly adjusted.



P : PURITY MAGNET
4 : 4 POLES (convergence magnets)
6 : 6 POLES (convergence magnets)

• **P/C MAGNETS**

Fig.1



Bring the long lug over the short lug and position them horizontally.

Fig.2

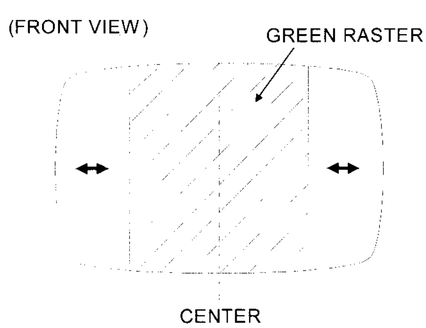


Fig.3

STATIC CONVERGENCE ADJUSTMENT

1. Input a crosshatch signal.
2. Using 4-pole convergence magnets, overlap the red and blue lines in the center of the screen (Fig.1) and turn them to magenta (red/blue).
3. Using 6-pole convergence magnets, overlap the magenta (red/blue) and green lines in the center of the screen and turn them to white.
4. Repeat 2 and 3 above, and make best convergence.

DYNAMIC CONVERGENCE ADJUSTMENT

1. Move the deflection yoke up and down and overlap the lines in the periphery. (Fig. 2)
2. Move the deflection yoke left to right and overlap the lines in the periphery. (Fig. 3)
3. Repeat 1 and 2 above, and make best convergence.

- After adjustment, fix the wedge at the original position.
  Fasten the retainer screw of the deflection yoke.
  Fix the 6 magnets with glue.

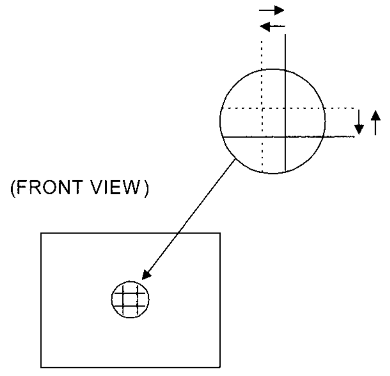


Fig.1

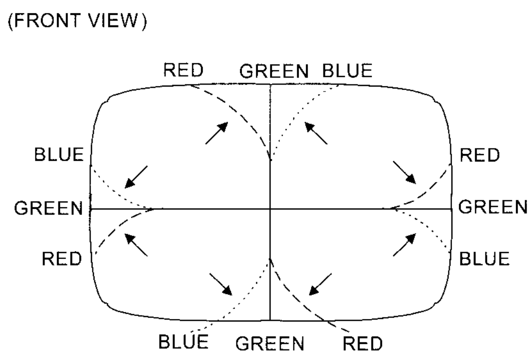


Fig.2

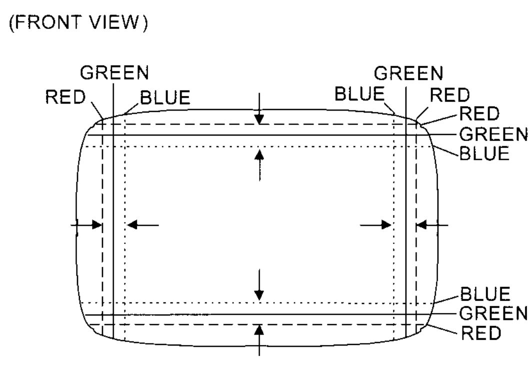


Fig.3

TM-950DU STANDARD CIRCUIT DIAGRAM

■ NOTE ON USING CIRCUIT DIAGRAMS

1. SAFETY

The components identified by the⚠ symbol and shading are critical for safety. For continued safety replace safety critical components only with manufactures recommended parts.

2.SPECIFIED VOLTAGE AND WAVEFORM VALUES

The voltage and waveform values have been measured under the following conditions.

(1)Input signal	:PAL Colour bar signal
(2)Setting positions of each knob/button and variable resistor	:Original setting position when shipped
(3)Internal resistance of tester	:DC 20kΩ/V
(4)Oscilloscope sweeping time	:H ⇒ 20μS/div
	:V ⇒ 5mS/div
	:Others ⇒ Sweeping time is specified
(5)Voltage values	:All DC voltage values

∗ Since the voltage values of signal circuit vary to some extent according to adjustments, use them as reference values.

3.INDICATION OF PARTS SYMBOL [EXAMPLE]

●In the PW board :R1209→R209

4.INDICATIONS ON THE CIRCUIT DIAGRAM

(1)Resistors

●Resistance value

No unit	:[Ω]
K	:[KΩ]
M	:[MΩ]

●Rated allowable power

No indication	:1/10[W]
Others	:As specified

●Type

No indication	:Carbon resistor
OMR	:Oxide metal film resistor
MFR	:Metal film resistor
MPR	:Metal plate resistor
UNFR	:Uninflammable resistor
FR	:Fusible resistor

*Composition resistor 1/2 [W] is specified as 1/2S or Comp.

(2)Capacitors

●Capacitance value

1 or higher	:[pF]
less than 1	:[μF]

●Withstand voltage

No indication	:DC50[V]
AC indicated	:AC withstand voltage [V]
Others	:DC withstand voltage [V]

*Electrolytic Capacitors

47/50[Example]:Capacitance value [μF]/withstand voltage[V]

●Type

No indication	:Ceramic capacitor
MY	:Mylar capacitor
MM	:Metalized mylar capacitor
PP	:Polypropylene capacitor
MPP	:Metalized polypropylene capacitor
MF	:Metalized film capacitor
TF	:Thin film capacitor
BP	:Bipolar electrolytic capacitor
TAN	:Tantalum capacitor

(3)Coils

No unit	:[μH]
Others	:As specified

(4)Power Supply

:B1

:B2(12V)

:9V

:5V

*Respective voltage values are indicated

(5)Test point

:Test point

:Only test point display

(6)Connecting method

:Connector

:Wrapping or soldering

:Receptacle

(7)Ground symbol

⊥ :LIVE side ground

:ISOLATED(NEUTRAL) side ground

⏚ :EARTH ground

:DIGITAL ground

5.NOTE FOR REPAIRING SERVICE

This model's power circuit is partly different in the GND. The difference of the GND is shown by the LIVE : (⊥) side GND and the ISOLATED(NEUTRAL) : ( ) side GND. Therefore, care must be taken for the following points.

(1)Do not touch the LIVE side GND or the LIVE side GND and the ISOLATED(NEUTRAL) side GND simultaneously. If the above caution is not respected, an electric shock may be caused. Therefore, make sure that the power cord is surely removed from the receptacle when, for example, the chassis is pulled out.

(2)Do not short between the LIVE side GND and ISOLATED(NEUTRAL) side GND or never measure with a measuring apparatus (oscilloscope, etc.) the LIVE side GND and ISOLATED(NEUTRAL) side GND at the same time. If the above precaution is not respected , a fuse or any parts will be broken.

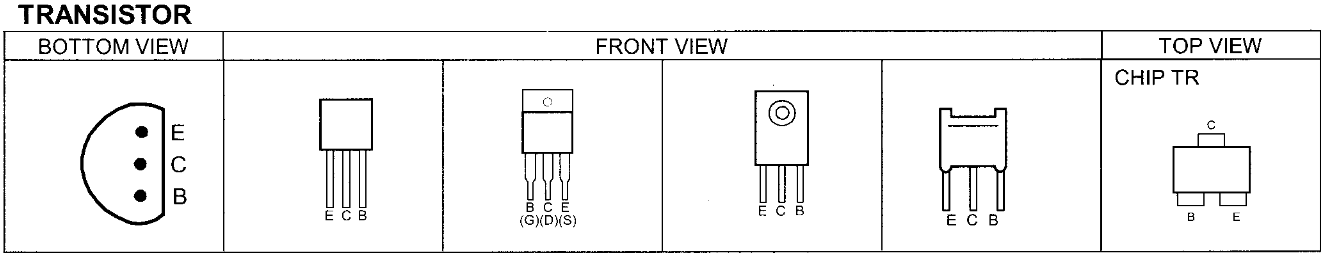
◇**Since the circuit diagram is a standard one, the circuit and circuit constants may be subject to change for improvement without any notice.**

May 2000 No.51717

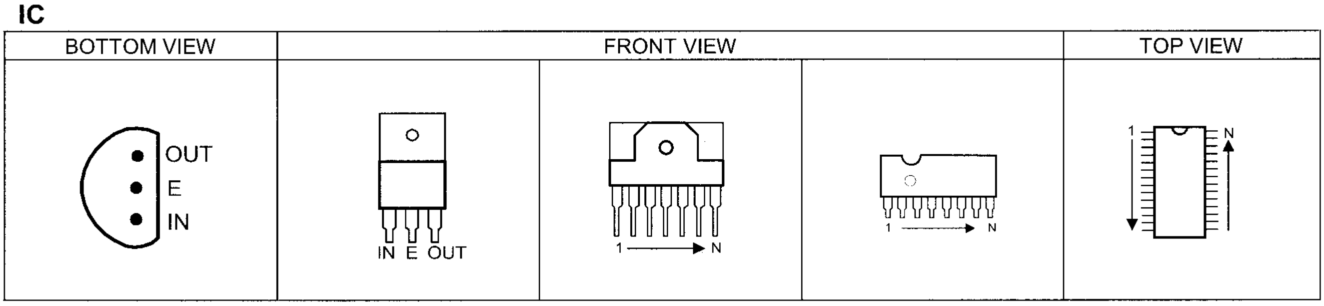
CONTENTS

SEMICONDUCTOR SHAPES

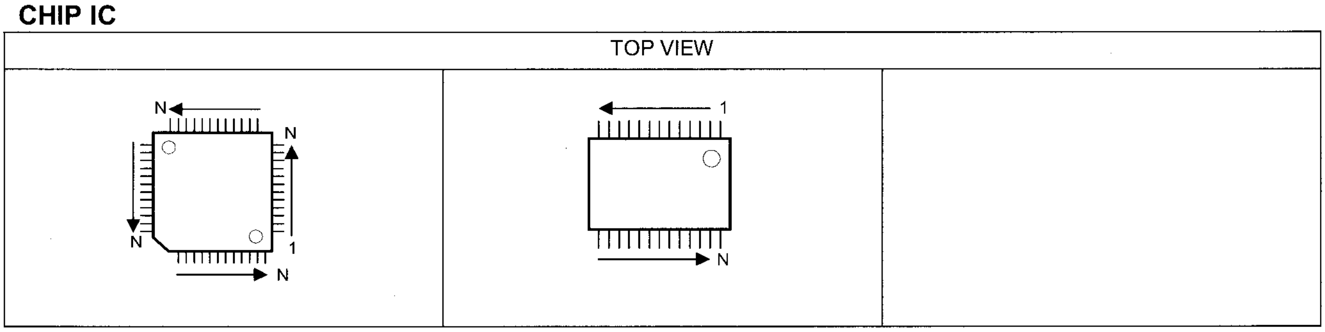
TRANSISTOR



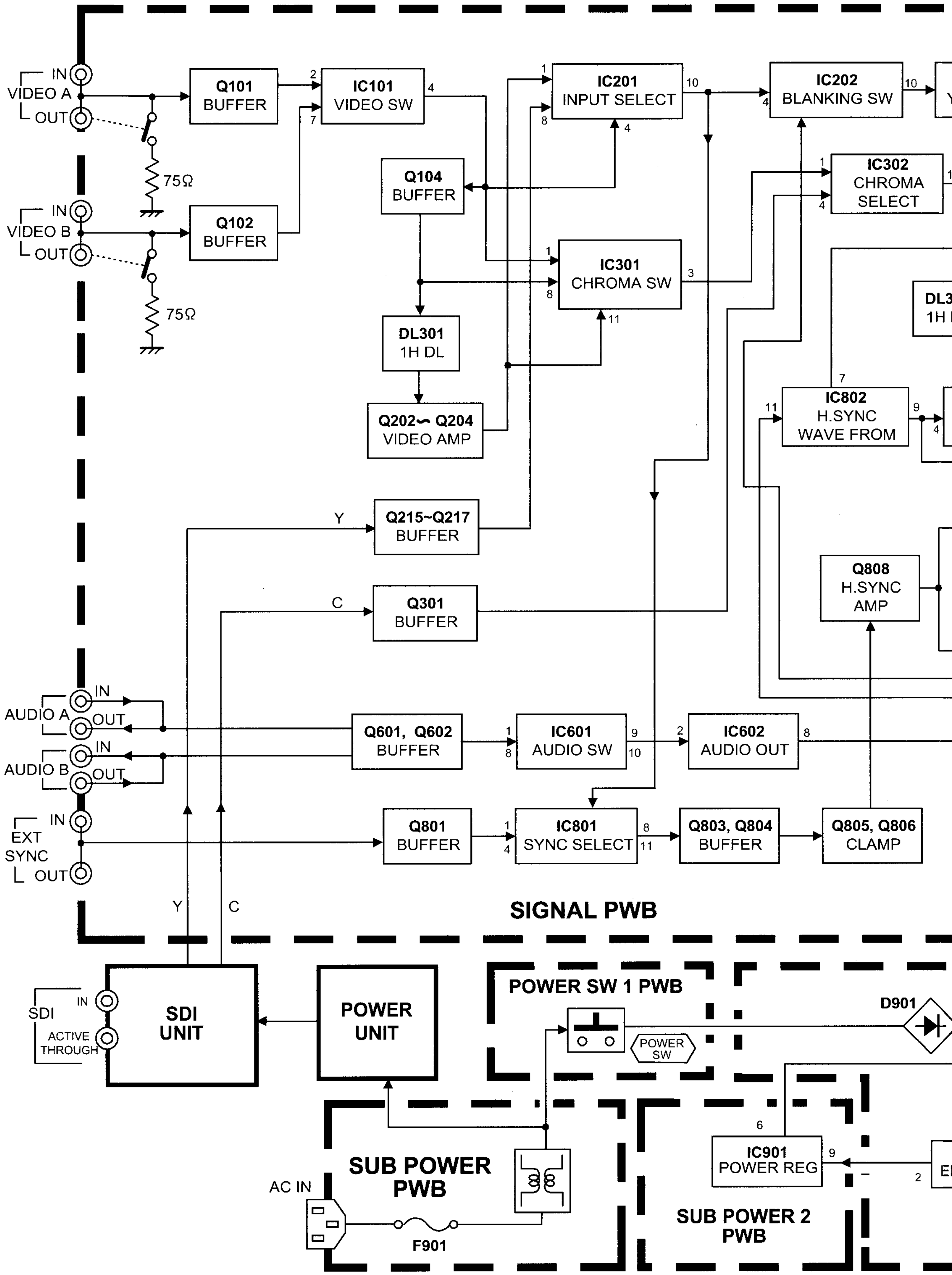
IC

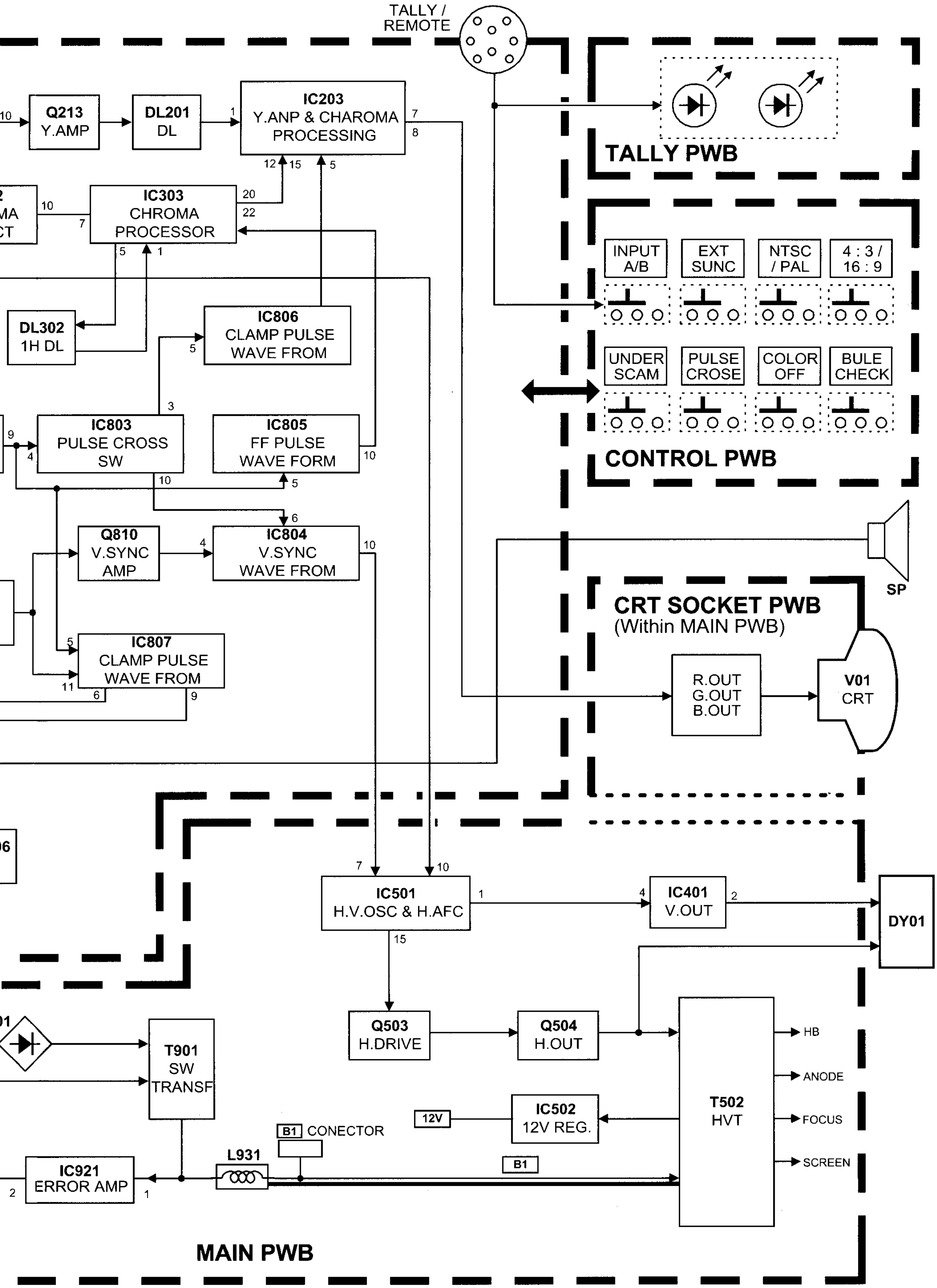


CHIP IC

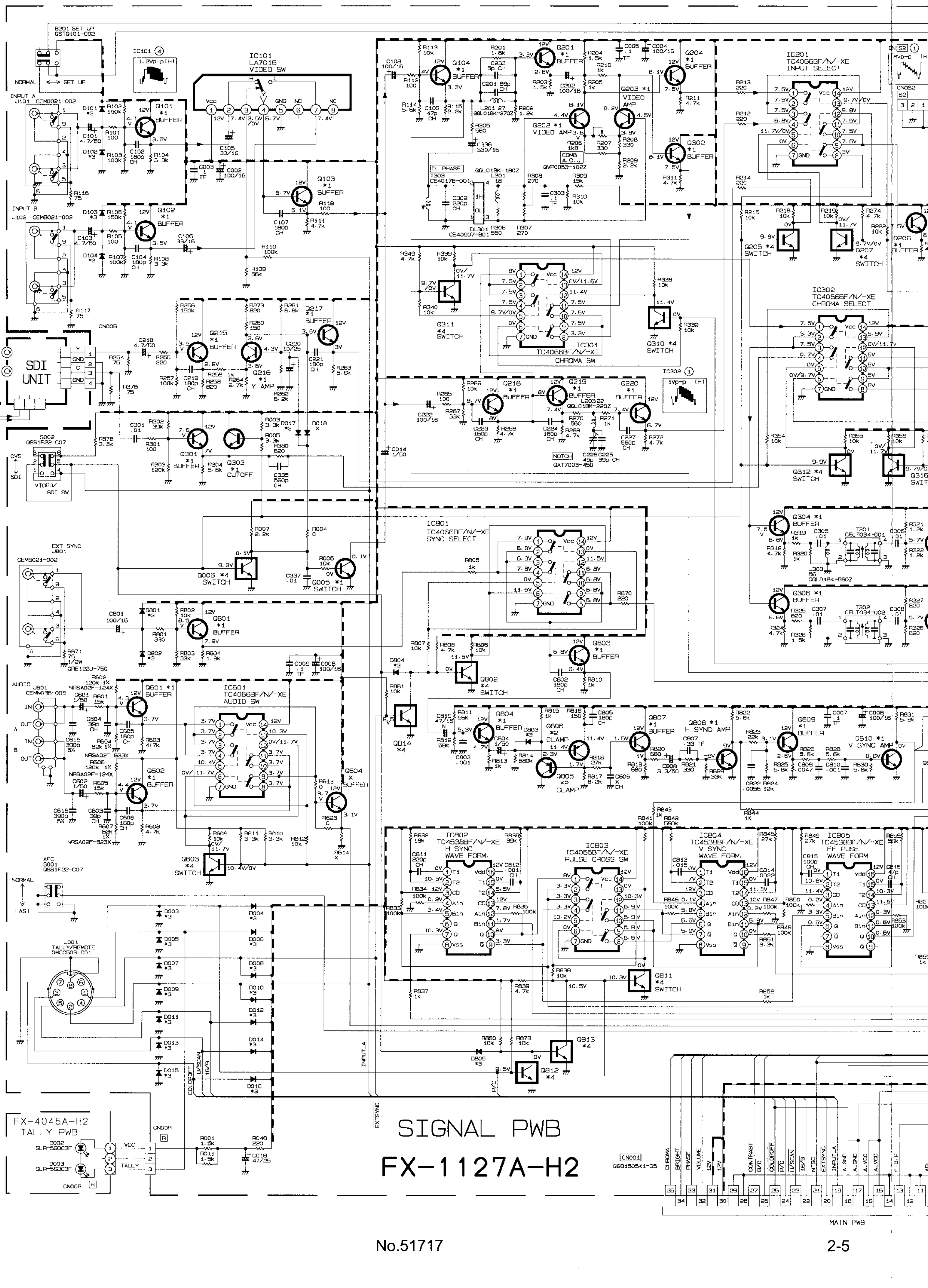


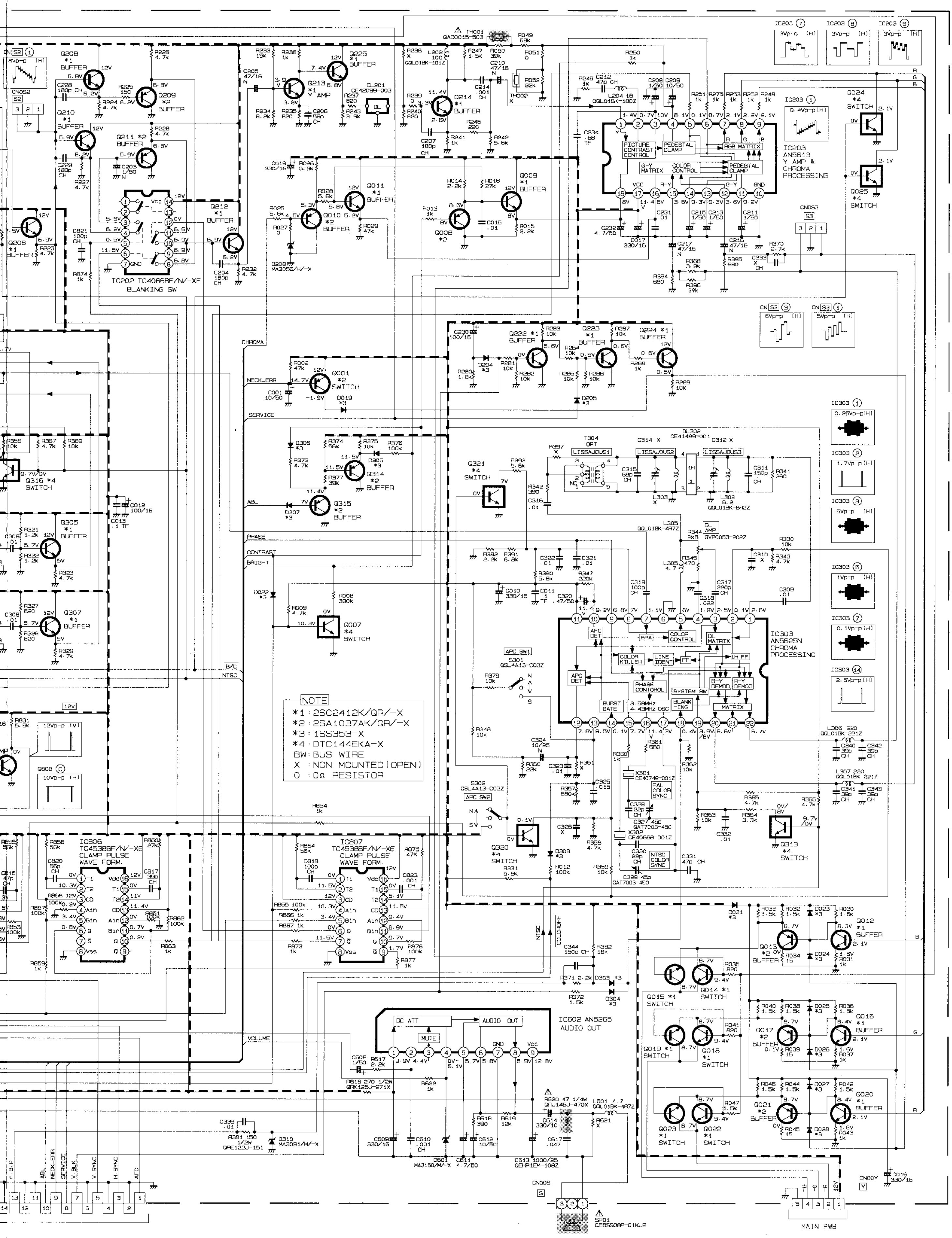
BLOCK DIAGRAM



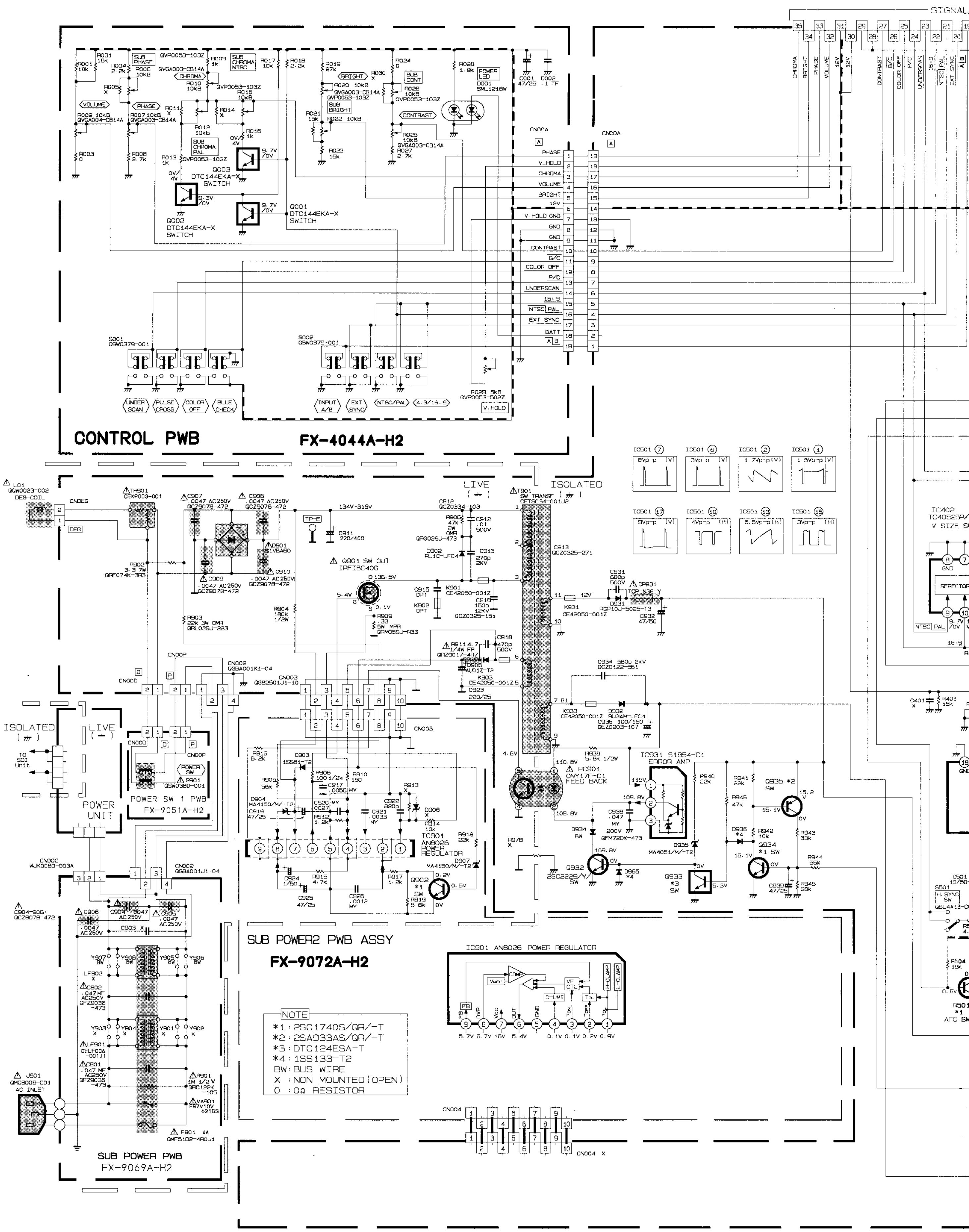

TALLY / REMOTE
Q213 Y.AMP
DL201 DL
IC203 Y.ANP & CHAROMA PROCESSING
IC303 CHROMA PROCESSOR
DL302 1H DL
IC806 CLAMP PULSE WAVE FROM
IC803 PULSE CROSS SW
IC805 FF PULSE WAVE FORM
Q810 V.SYNC AMP
IC804 V.SYNC WAVE FROM
IC807 CLAMP PULSE WAVE FROM
TALLY PWB
INPUT A/B
EXT SUNC
NTSC / PAL
4 : 3 / 16 : 9
UNDER SCAM
PULSE CROSE
COLOR OFF
BULE CHECK
CONTROL PWB
SP
CRT SOCKET PWB
(Within MAIN PWB)
R.OUT G.OUT B.OUT
V01 CRT
IC501 H.V.OSC & H.AFC
IC401 V.OUT
DY01
Q503 H.DRIVE
Q504 H.OUT
T502 HVT
HB
ANODE
FOCUS
SCREEN
12V
IC502 12V REG.
T901 SW TRANSF
B1 CONECTOR
L931
B1
IC921 ERROR AMP
MAIN PWB

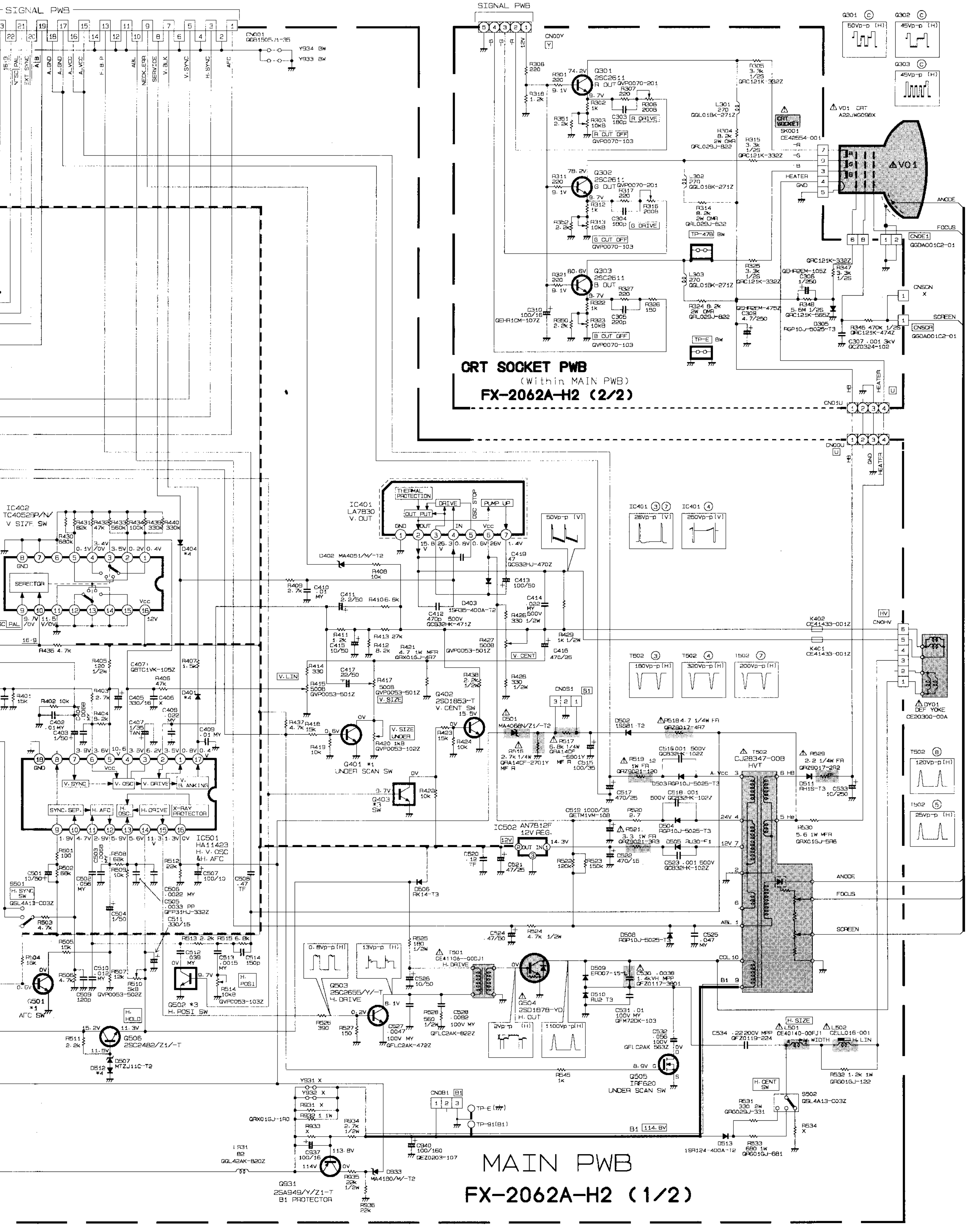
CIRCUIT DIAGRAMS *[SIGNAL & TALLY PWB CIRCUIT DIAGRAM]*



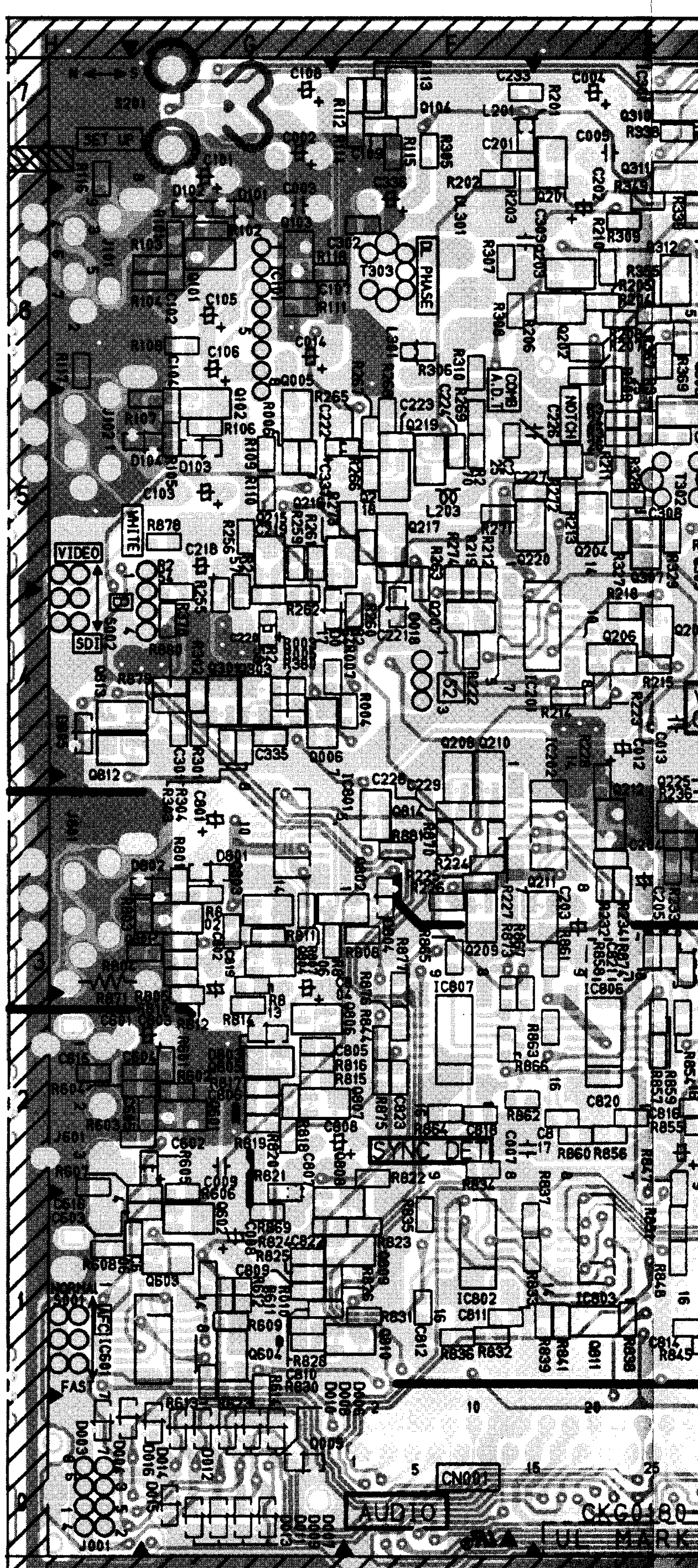

NOTE
*1 : 2SC2412K/QR/-X
*2 : 2SA1037AK/QR/-X
*3 : 1SS353-X
*4 : DTC144EKA-X
BW : BUS WIRE
X : NON MOUNTED (OPEN)
0 : 0Ω RESISTOR
IC202 TC4066BF/N/-XE
BLANKING SW
IC203
AN5612
Y AMP &
CHROMA
PROCESSING
IC303
AN5625N
CHROMA
PROCESSING
IC806
TC4538BF/N/-XE
CLAMP PULSE
WAVE FORM.
IC807
TC4538BF/N/-XE
CLAMP PULSE
WAVE FORM.
IC602 AN5265
AUDIO OUT
MAIN PWB

[MAIN, CRT SOCKET, CONTROL, POWER SW 1, SUB POWER & SUB POWER 2 PWB CIRCUIT DIAGRAM]



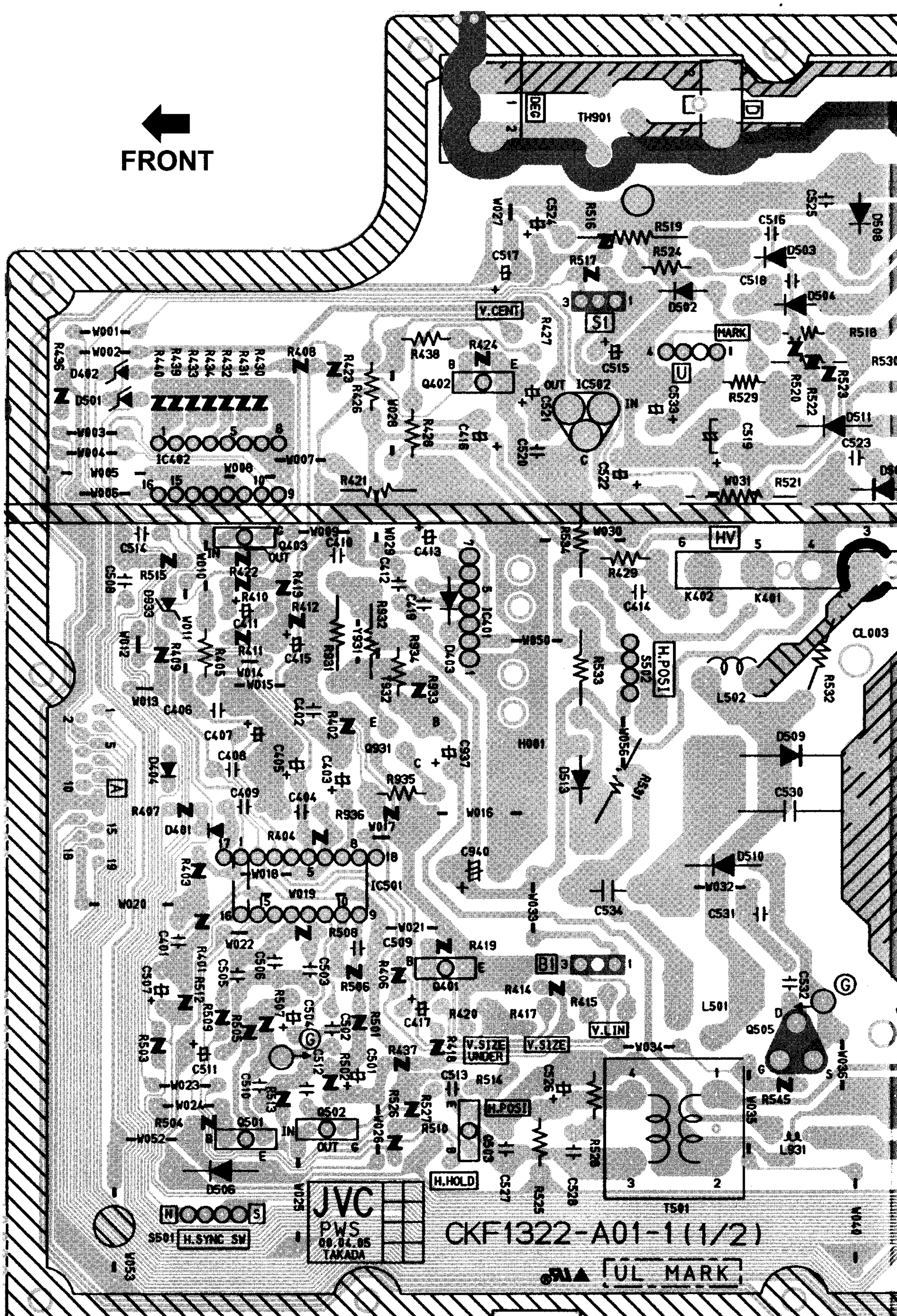

CRT SOCKET PWB
(Within MAIN PWB)
FX-2062A-H2 (2/2)
MAIN PWB
FX-2062A-H2 (1/2)
SIGNAL PWB

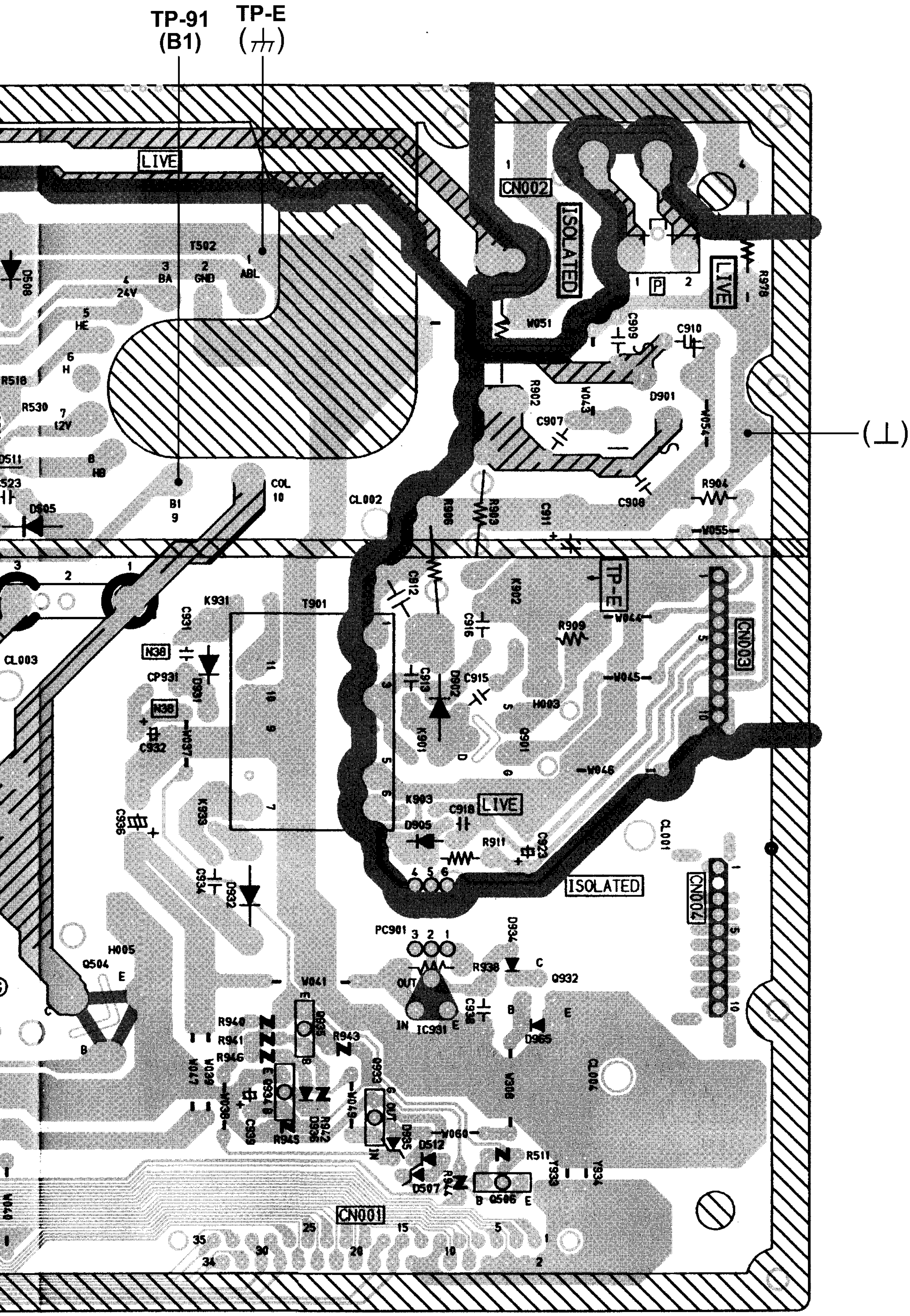
PATTERN DIAGRAMS *[SIGNAL PWB PATTERN]*



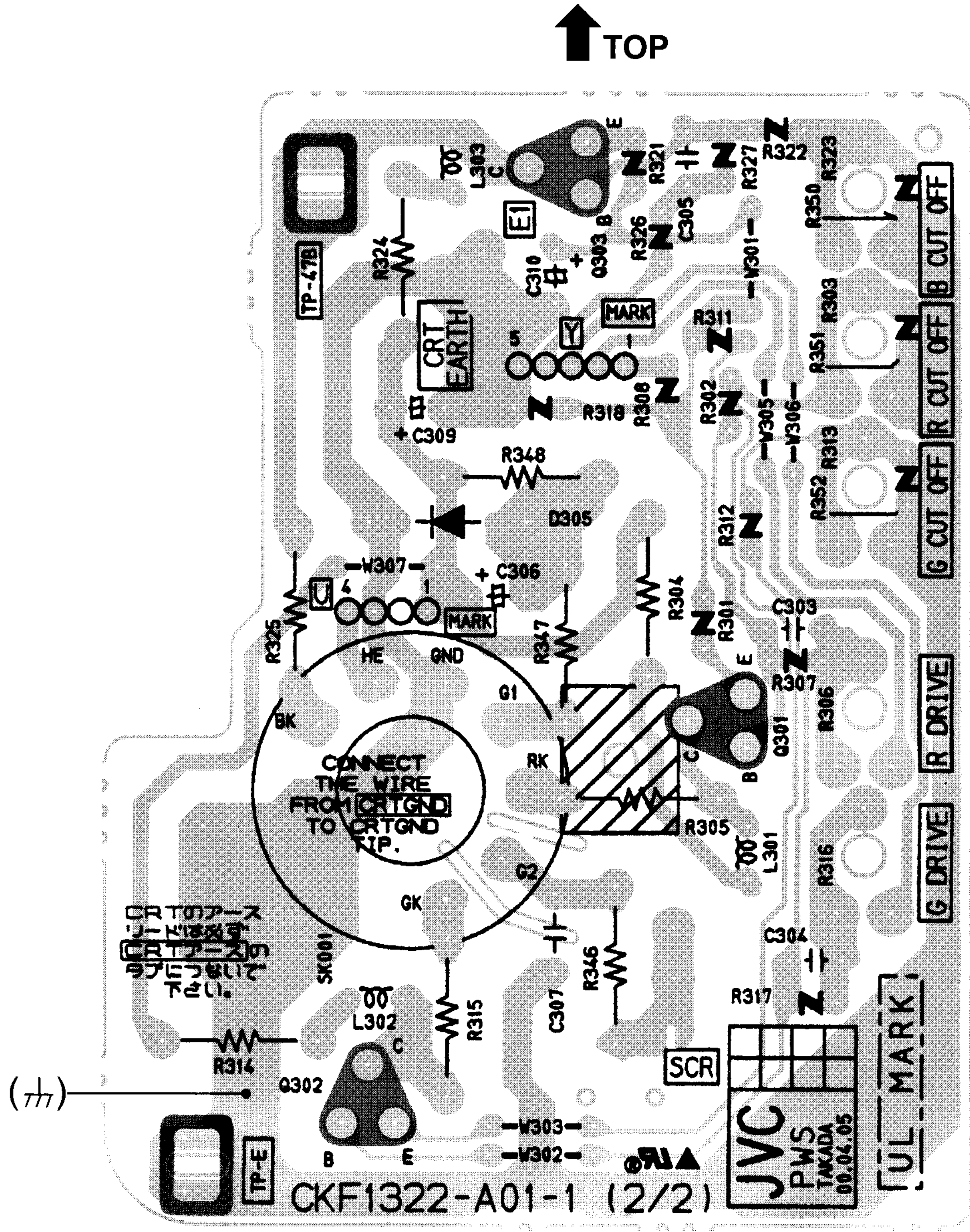

TOP
VIDEO/CHROMA
NTSC COLOR SYNC
PAL COLOR SYNC
DL AMP
NTSC B.P.F
PAL B.P.F

[MAIN PWB PATTERN]

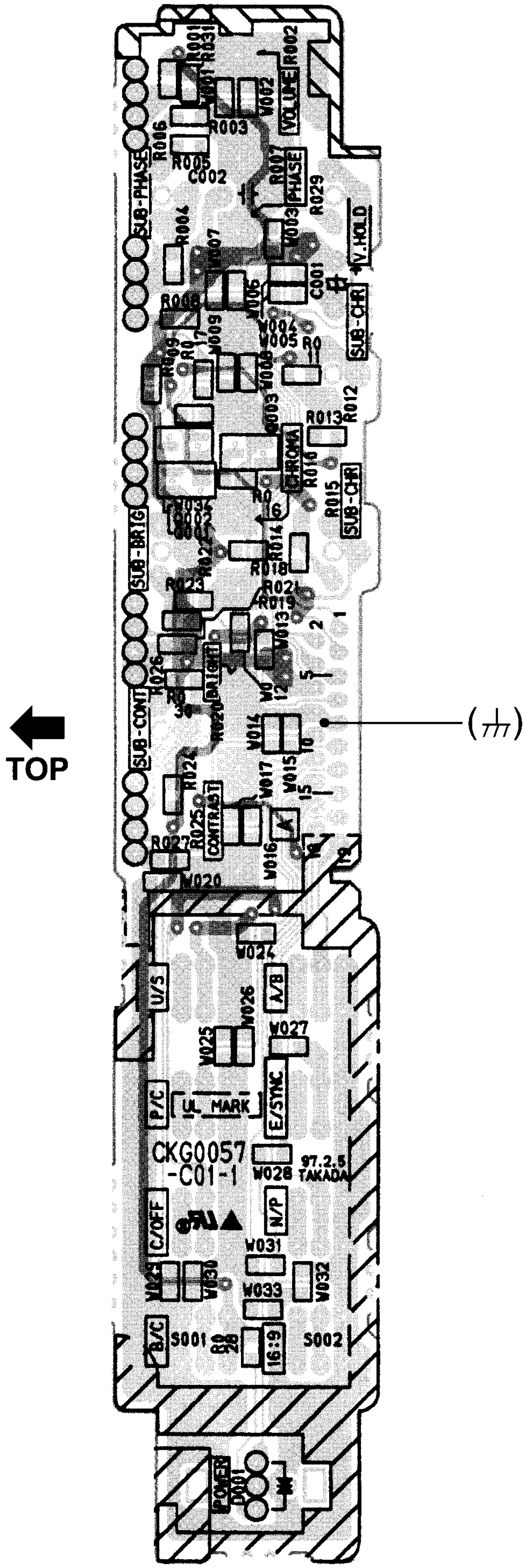



TP-91
(B1)
TP-E
(⊥)
LIVE
ISOLATED
CN002
CN003
CN004
CN001
T502
T901
PC901
IC931
Q932
Q504
Q506
CL002
CL003
CL001
CL004
R978
R904
R909
R911
R938
R940
R941
R946
R943
R945
R511
R530
C909
C910
C907
C908
C911
C912
C916
C913
C915
C918
C923
C931
C932
C934
C936
C938
C939
CP931
D901
D902
D905
D931
D932
D934
D965
D935
D512
D507
W051
W043
W054
W055
W044
W045
W046
W041
W060
W308
H003
H005
K902
K931
K903
K933
K901
N38
B1
9
COL
10
ABL
GND
BA
24V
HE
H
12V
HB

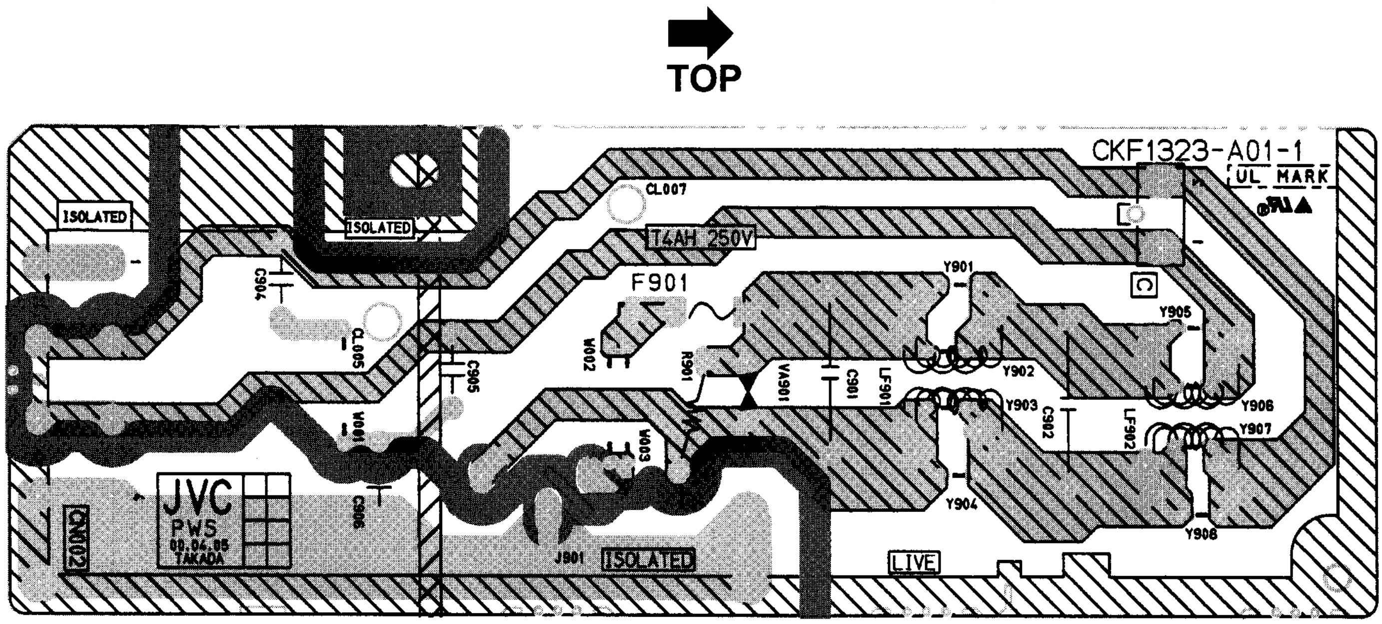
[CRT SOCKET PWB PATTERN]



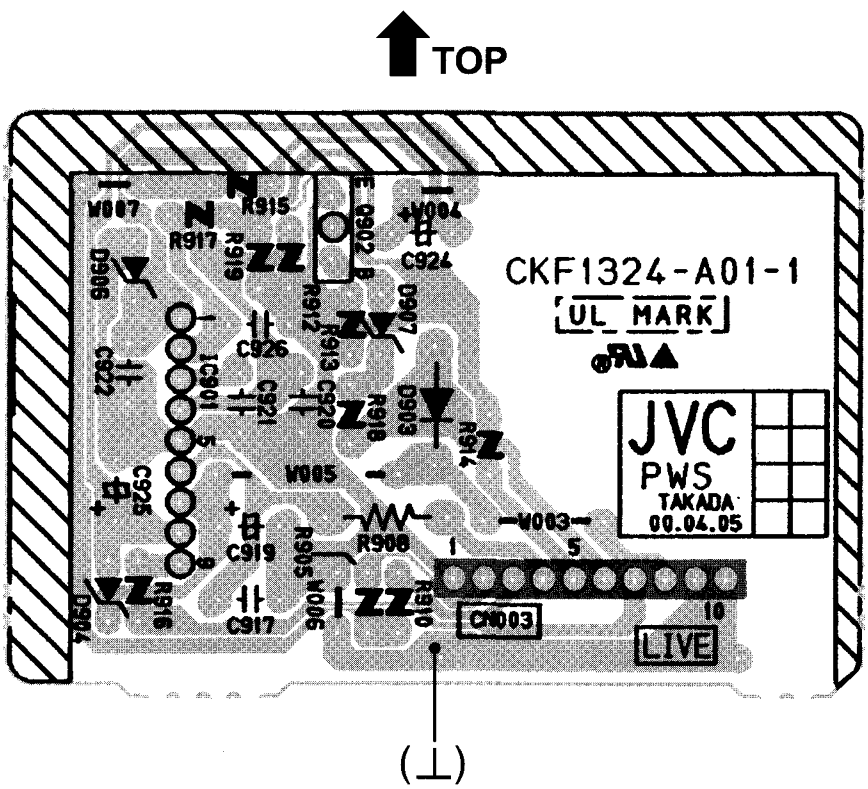
[CONTROL PWB PATTERN]



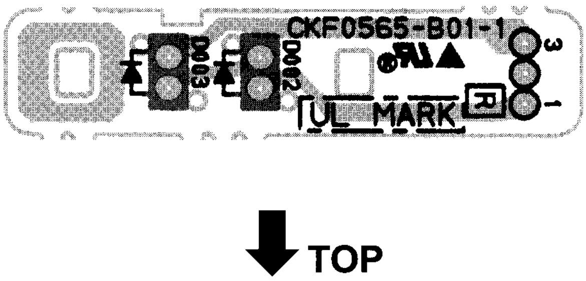
[SUB POWER PWB PATTERN]



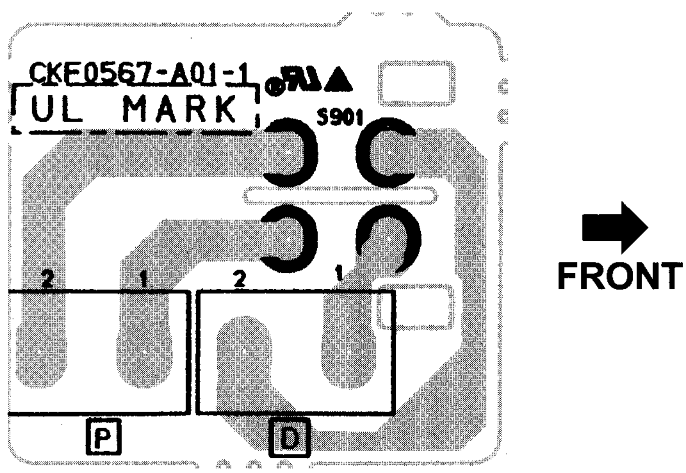
[SUB POWER 2 PWB PATTERN]



[TALLY PWB PATTERN]



[POWER SW 1 PWB PATTERN]



VP0005
DP6053

PARTS LIST

CAUTION

- The parts identified by the ⚠ symbol are important for the safety. Whenever replacing these parts, be sure to use specified ones to secure the safety .
- The parts not indicated in this Parts List and those which are filled with lines —— in the Parts No. columns will not be supplied.
- P. W. Board Ass'y will not be supplied, but those which are filled with the Parts No. in the Parts No. columns will be supplied.

ABBREVIATIONS OF RESISTORS, CAPACITORS AND TOLERANCES

RESISTORS		CAPACITORS	
C R	Carbon Resistor	C CAP.	Ceramic Capacitor
F R	Fusible Resistor	E CAP.	Electrolytic Capacitor
P R	Plate Resistor	M CAP.	Mylar Capacitor
V R	Variable Resistor	HV CAP.	High Voltage Capacitor
HV R	High Voltage Resistor	MF CAP.	Metalized Film Capacitor
MF R	Metal Film Resistor	MM CAP.	Metalized Mylar Capacitor
MG R	Metal Glazed Resistor	MP CAP.	Metalized Polystyrol Capacitor
MP R	Metal Plate Resistor	PP CAP.	Polypropylene Capacitor
OM R	Metal Oxide Film Resistor	PS CAP.	Polystyrol Capacitor
CMF R	Coating Metal Film Resistor	TF CAP.	Thin Film Capacitor
UNF R	Non-Flammable Resistor	MPP CAP.	Metalized Polypropylene Capacitor
CH V R	Chip Variable Resistor	TAN. CAP.	Tantalum Capacitor
CH MG R	Chip Metal Glazed Resistor	CH C CAP.	Chip Ceramic Capacitor
COMP. R	Composition Resistor	BP E CAP.	Bi-Polar Electrolytic Capacitor
LPTC R	Linear Positive Temperature Coefficient Resistor	CH AL E CAP.	Chip Aluminum Electrolytic Capacitor
		CH AL BP CAP.	Chip Aluminum Bi-Polar Capacitor
		CH TAN. E CAP.	Chip Tantalum Electrolytic Capacitor
		CH AL BP E CAP.	Chip Tantalum Bi-Polar Electrolytic Capacitor

TOLERANCES									
F	G	J	K	M	N	R	H	Z	P
±1%	±2%	±5%	±10%	±20%	±30%	+30% -10%	+50% -10%	+80% -20%	+100% -0%

CONTENTS

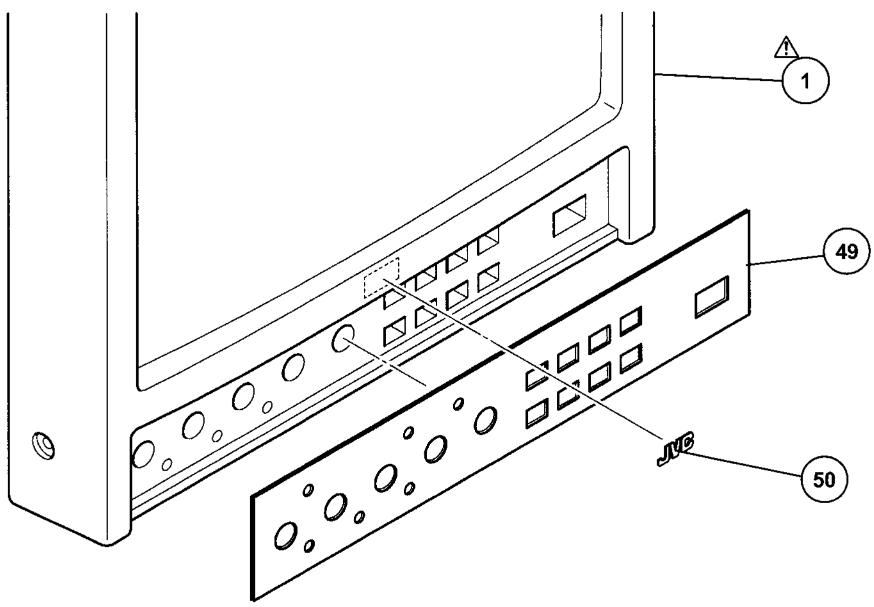
USING PW BOARD

PWB Name	PWB No.
SIGNAL PWB	FX-1127A-H2
MAIN PWB	FX-2062A-H2
CONTROL PWB	FX-4044A-H2
TALLY PWB	FX-4045A-H2
POWER SW 1 PWB	FX-9051A-H2
SUB POWER SW PWB	FX-9069A-H2
SUB POWER 2 PWB	FX-9072A-H2

EXPLODED VIEW PARTS LIST (I)

⚠ Ref.No.	Part No.	Part Name	Description
⚠ 1	CM12867-C01-VH	FRONT PANEL	
49	CM23089-003	CONTROL SHEET	
50	CM48149-A01	JVC MARK	

EXPLODED VIEW (I)



EXPLODED VIEW PARTS LIST (II)

⚠ Ref.No.	Part No.	Part Name	Description
⚠ L01	QQW0023-002	DEGAUSSING COIL	
⚠ V01	A22JWG098X	PICTURE TUBE(C)	
⚠ DY01	CE20300-00A	DEFLECTION YOKE	
⚠ T2502	CJ28347-00B	H.V.TRANSF.	(Within MIAN PWB)
⚠ J9901	QMCB006-C01	AC INLET	(Within SUB POWER PWB)
⚠ 1	CM12867-C01-VH	FRONT PANEL	
2	CM48174-001	SPRING	
3	CHGB0016-0G	BRAIDED ASSY	
4	CE40666-00A	WEDGE	(×3)
5	QYSDSF3006M	SCREW	(×4)
6	CM36546-A01	TALLY LENS	
7	CE42709-00A	P.C.MAGNET	
8	QYSBSGG3008Z	TAPPING SCREW	(×2)
9	CM36519-A01	GUARD SHEET	
10	CM45627-00A	RIVET	
⚠ 11	CM48268-001	CAUTION LABEL	
12	CM48246-A01	PW SW SHEET	
13	QYSBSF4012Z	TAPPING SCREW	
14	CM46115-C01	POWER KNOB	
15	CM47853-005	VOLUME KNOB	(×5)
16	CM46044-001	PUSH KNOB	(×8)
17	CHFB119-08BD	FFC WIRE	
⚠ 18	CEBSS08P-01KJ2	SPEAKER	SP01
19	CM46044-001	PUSH KNOB	
⚠ 20	CM12868-A01-VH	CHASSIS BASE	
21	CM12869-001-H	TERMINAL BKT	
22	QYSBSB3010M	TAPPING SCREW	(×5)
23	CM44287-00C	ASSY SCREW	(×2)
24	QYSBSF4012Z	TAPPING SCREW	
25	CM22942-C01-H	BOTTOM COVER	
26	QZF2207-001	FOOT	(×4)
27	QYSBSGG3008Z	TAPPING SCREW	(×4)
28	CM44287-00C	ASSY SCREW	
29	LC10836-001A-H	REAR PANEL	
30	CM41393-003	EDGE SADDLE	
31	QAL0231-002	POWER UNIT	
32	CM44287-00C	ASSY SCREW	(×2)
33	QYSBSBG3008Z	TAPPING SCREW	(×2)
34	LC10839-001A-H	COVER	
⚠ 35	LC20406-009A-OL	ROLL R LABEL	
36	CM44287-00C	ASSY SCREW	(×6)
⚠ 37	LC30475-005A-H	WARNING LABEL	
38	CM44287-00C	ASSY SCREW	(×4)
39	CM44287-00C	ASSY SCREW	
40	CM12879-00B-H	TOP COVER	(SERVICE)
41	QYSPSPD4008N	SCREW	(×2)
42	CM44287-00C	ASSY SCREW	(×4)
43	QAU0178-001	INTERFACE UNIT	
44	QYSBSGG3008Z	TAPPING SCREW	(×4)
45	LC31200-001A-H	SDI COVER	
46	LC31199-001A-H	SDI BASE	
47	CM44141-B01	EARTH LABEL	
48	CM44287-00C	ASSY SCREW	

EXPLODED VIEW (II)

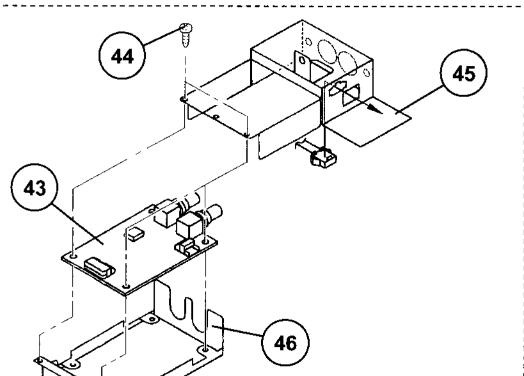


Fig. 1

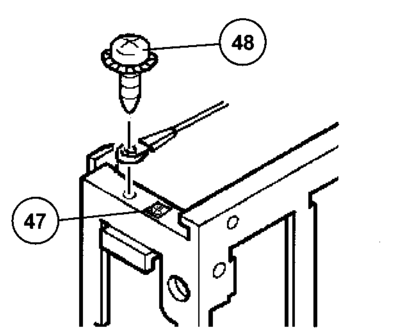
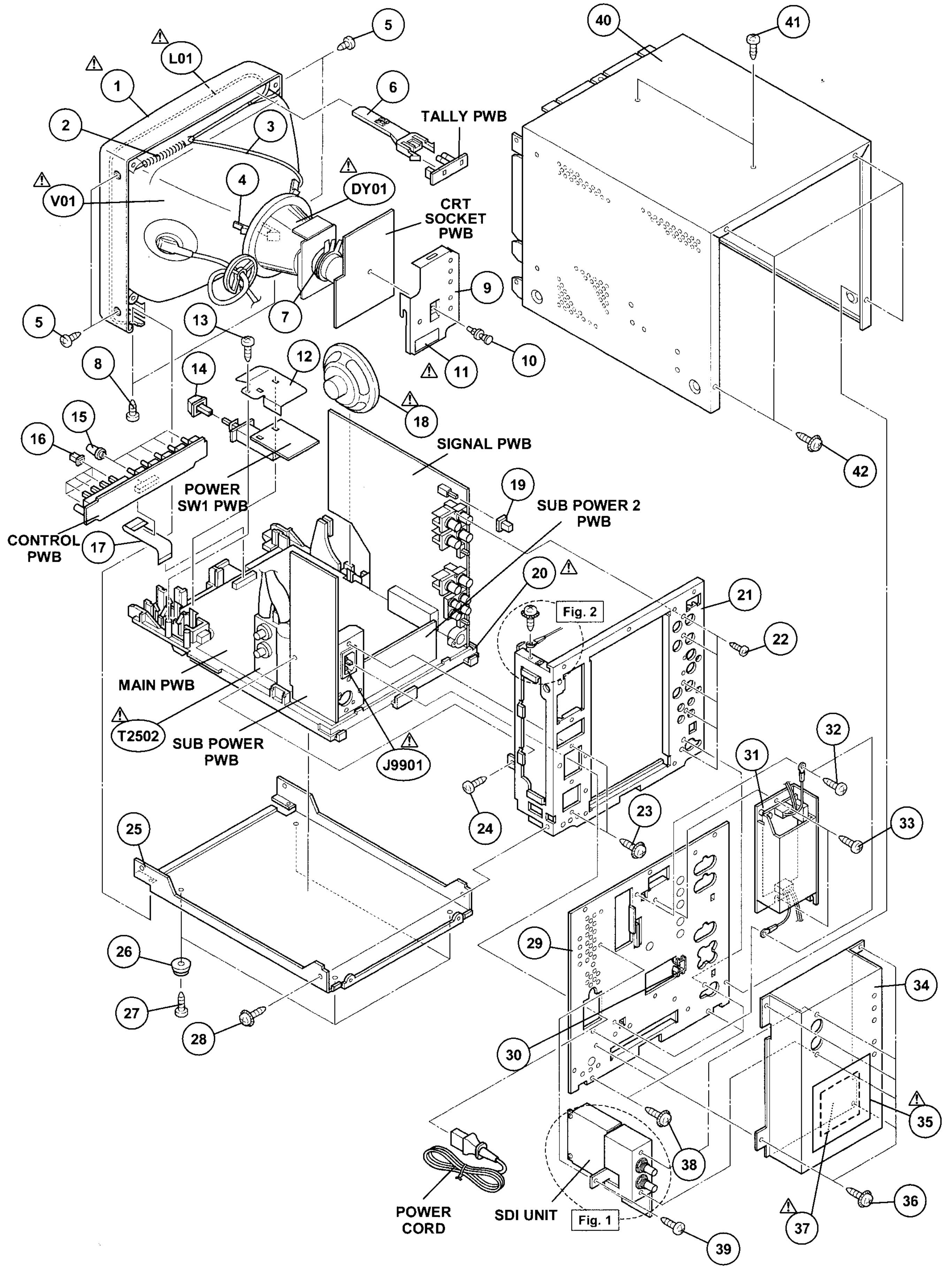


Fig. 2



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L01
V01
DY01
T2502
J9901
TALLY PWB
CRT SOCKET PWB
SIGNAL PWB
SUB POWER 2 PWB
POWER SW1 PWB
CONTROL PWB
MAIN PWB
SUB POWER PWB
POWER CORD
SDI UNIT
Fig. 1
Fig. 2

PRINTED WIRING BOARD PARTS LIST

SIGNAL PW BOARD ASS'Y (FX-1127A-H2)

VARIABLE RESISTOR

⚠	Symbol No.	Part No.	Part Name	Description
	R1206	QVP0053-102Z	V R(COMB. A.D.J)	1kΩ
	R1344	QVP0053-202Z	V R(DL AMP)	2kΩ

RESISTOR

⚠	Symbol No.	Part No.	Part Name	Description
	R1001	NRSA02J-152X	MG R	1.5kΩ 1/10W J
	R1002	NRSA02J-473X	MG R	47kΩ 1/10W J
	R1003	NRSA02J-472X	MG R	4.7kΩ 1/10W J
	R1004	NRSA02J-471X	MG R	470Ω 1/10W J
	R1006	NRSA02J-103X	MG R	10kΩ 1/10W J
	R1007	NRSA02J-222X	MG R	2.2kΩ 1/10W J
	R1008	NRSA02J-394X	MG R	390kΩ 1/10W J
	R1009	NRSA02J-472X	MG R	4.7kΩ 1/10W J
	R1010	NRSA02J-272X	MG R	2.7kΩ 1/10W J
	R1011	NRSA02J-152X	MG R	1.5kΩ 1/10W J
	R1012	NRSA02J-104X	MG R	100kΩ 1/10W J
	R1013	NRSA02J-102X	MG R	1kΩ 1/10W J
	R1014-15	NRSA02J-222X	MG R	2.2kΩ 1/10W J
	R1016	NRSA02J-273X	MG R	27kΩ 1/10W J
	R1025-26	NRSA02J-562X	MG R	5.6kΩ 1/10W J
	R1027	NRSA02J-0R0X	MG R	0.0Ω 1/10W J
	R1028	NRSA02J-562X	MG R	5.6kΩ 1/10W J
	R1029	NRSA02J-473X	MG R	47kΩ 1/10W J
	R1030	NRSA02J-152X	MG R	1.5kΩ 1/10W J
	R1031	NRSA02J-102X	MG R	1kΩ 1/10W J
	R1032-33	NRSA02J-152X	MG R	1.5kΩ 1/10W J
	R1034	NRSA02J-150X	MG R	15Ω 1/10W J
	R1035	NRSA02J-821X	MG R	820Ω 1/10W J
	R1036	NRSA02J-152X	MG R	1.5kΩ 1/10W J
	R1037	NRSA02J-102X	MG R	1kΩ 1/10W J
	R1038	NRSA02J-152X	MG R	1.5kΩ 1/10W J
	R1039	NRSA02J-150X	MG R	15Ω 1/10W J
	R1040	NRSA02J-152X	MG R	1.5kΩ 1/10W J
	R1041	NRSA02J-821X	MG R	820Ω 1/10W J
	R1042	NRSA02J-152X	MG R	1.5kΩ 1/10W J
	R1043	NRSA02J-102X	MG R	1kΩ 1/10W J
	R1044	NRSA02J-152X	MG R	1.5kΩ 1/10W J
	R1045	NRSA02J-150X	MG R	15Ω 1/10W J
	R1046-47	NRSA02J-152X	MG R	1.5kΩ 1/10W J
	R1048	NRSA02J-221X	MG R	220Ω 1/10W J
	R1049	NRSA02J-683X	MG R	68kΩ 1/10W J
	R1050	NRSA02J-393X	MG R	39kΩ 1/10W J
	R1051	NRSA02J-0R0X	MG R	0.0Ω 1/10W J
	R1052	NRSA02J-823X	MG R	82kΩ 1/10W J
	R1101	NRSA02J-101X	MG R	100Ω 1/10W J
	R1102	NRSA02J-154X	MG R	150kΩ 1/10W J
	R1103	NRSA02J-104X	MG R	100kΩ 1/10W J
	R1104	NRSA02J-332X	MG R	3.3kΩ 1/10W J
	R1105	NRSA02J-101X	MG R	100Ω 1/10W J
	R1106	NRSA02J-154X	MG R	150kΩ 1/10W J
	R1107	NRSA02J-104X	MG R	100kΩ 1/10W J
	R1108	NRSA02J-332X	MG R	3.3kΩ 1/10W J
	R1109	NRSA02J-563X	MG R	56kΩ 1/10W J
	R1110	NRSA02J-104X	MG R	100kΩ 1/10W J
	R1111	NRSA02J-472X	MG R	4.7kΩ 1/10W J
	R1112	NRSA02J-101X	MG R	100Ω 1/10W J
	R1113	NRSA02J-103X	MG R	10kΩ 1/10W J
	R1114	NRSA02J-562X	MG R	5.6kΩ 1/10W J
	R1115	NRSA02J-222X	MG R	2.2kΩ 1/10W J
	R1116-17	NRSA02J-750X	MG R	75Ω 1/10W J
	R1118	NRSA02J-101X	MG R	100Ω 1/10W J
	R1201	NRSA02J-182X	MG R	1.8kΩ 1/10W J
	R1202	NRSA02J-122X	MG R	1.2kΩ 1/10W J
	R1203-04	NRSA02J-152X	MG R	1.5kΩ 1/10W J
	R1205	NRSA02J-102X	MG R	1kΩ 1/10W J
	R1207-08	NRSA02J-331X	MG R	330Ω 1/10W J

RESISTOR

⚠	Symbol No.	Part No.	Part Name	Description
	R1209	NRSA02J-222X	MG R	2.2kΩ 1/10W J
	R1210	NRSA02J-102X	MG R	1kΩ 1/10W J
	R1211	NRSA02J-472X	MG R	4.7kΩ 1/10W J
	R1212-14	NRSA02J-221X	MG R	220Ω 1/10W J
	R1215	NRSA02J-103X	MG R	10kΩ 1/10W J
	R1218-19	NRSA02J-103X	MG R	10kΩ 1/10W J
	R1222	NRSA02J-103X	MG R	10kΩ 1/10W J
	R1223-24	NRSA02J-472X	MG R	4.7kΩ 1/10W J
	R1225	NRSA02J-151X	MG R	150Ω 1/10W J
	R1226-28	NRSA02J-472X	MG R	4.7kΩ 1/10W J
	R1232	NRSA02J-472X	MG R	4.7kΩ 1/10W J
	R1233	NRSA02J-153X	MG R	15kΩ 1/10W J
	R1234	NRSA02J-822X	MG R	8.2kΩ 1/10W J
	R1235	NRSA02J-821X	MG R	820Ω 1/10W J
	R1236	NRSA02J-102X	MG R	1kΩ 1/10W J
	R1237	NRSA02J-821X	MG R	820Ω 1/10W J
	R1239	NRSA02J-0R0X	MG R	0.0Ω 1/10W J
	R1240	NRSA02J-821X	MG R	820Ω 1/10W J
	R1241	NRSA02J-102X	MG R	1kΩ 1/10W J
	R1242	NRSA02J-562X	MG R	5.6kΩ 1/10W J
	R1243	NRSA02J-392X	MG R	3.9kΩ 1/10W J
	R1246	NRSA02J-221X	MG R	220Ω 1/10W J
	R1247	NRSA02J-152X	MG R	1.5kΩ 1/10W J
	R1248-53	NRSA02J-102X	MG R	1kΩ 1/10W J
	R1254	NRSA02J-750X	MG R	75Ω 1/10W J
	R1255	NRSA02J-221X	MG R	220Ω 1/10W J
	R1256	NRSA02J-154X	MG R	150kΩ 1/10W J
	R1257	NRSA02J-104X	MG R	100kΩ 1/10W J
	R1258	NRSA02J-821X	MG R	820Ω 1/10W J
	R1259	NRSA02J-102X	MG R	1kΩ 1/10W J
	R1260	NRSA02J-151X	MG R	150Ω 1/10W J
	R1261	NRSA02J-682X	MG R	6.8kΩ 1/10W J
	R1262	NRSA02J-822X	MG R	8.2kΩ 1/10W J
	R1263	NRSA02J-562X	MG R	5.6kΩ 1/10W J
	R1264	NRSA02J-272X	MG R	2.7kΩ 1/10W J
	R1265	NRSA02J-101X	MG R	100Ω 1/10W J
	R1266	NRSA02J-103X	MG R	10kΩ 1/10W J
	R1267	NRSA02J-333X	MG R	33kΩ 1/10W J
	R1268-69	NRSA02J-472X	MG R	4.7kΩ 1/10W J
	R1270	NRSA02J-561X	MG R	560Ω 1/10W J
	R1271	NRSA02J-102X	MG R	1kΩ 1/10W J
	R1272	NRSA02J-472X	MG R	4.7kΩ 1/10W J
	R1273	NRSA02J-821X	MG R	820Ω 1/10W J
	R1274	NRSA02J-472X	MG R	4.7kΩ 1/10W J
	R1275	NRSA02J-102X	MG R	1kΩ 1/10W J
	R1280	NRSA02J-182X	MG R	1.8kΩ 1/10W J
	R1281-87	NRSA02J-103X	MG R	10kΩ 1/10W J
	R1288	NRSA02J-102X	MG R	1kΩ 1/10W J
	R1289	NRSA02J-103X	MG R	10kΩ 1/10W J
	R1301	NRSA02J-101X	MG R	100Ω 1/10W J
	R1302	NRSA02J-393X	MG R	39kΩ 1/10W J
	R1303	NRSA02J-124X	MG R	120kΩ 1/10W J
	R1304	NRSA02J-562X	MG R	5.6kΩ 1/10W J
	R1305-06	NRSA02J-561X	MG R	560Ω 1/10W J
	R1307-08	NRSA02J-271X	MG R	270Ω 1/10W J
	R1309	NRSA02J-153X	MG R	15kΩ 1/10W J
	R1310	NRSA02J-103X	MG R	10kΩ 1/10W J
	R1311	NRSA02J-472X	MG R	4.7kΩ 1/10W J
	R1318	NRSA02J-472X	MG R	4.7kΩ 1/10W J
	R1319-20	NRSA02J-102X	MG R	1kΩ 1/10W J
	R1321-22	NRSA02J-122X	MG R	1.2kΩ 1/10W J
	R1323-24	NRSA02J-472X	MG R	4.7kΩ 1/10W J
	R1325	NRSA02J-821X	MG R	820Ω 1/10W J
	R1326	NRSA02J-152X	MG R	1.5kΩ 1/10W J
	R1327-28	NRSA02J-821X	MG R	820Ω 1/10W J
	R1329	NRSA02J-472X	MG R	4.7kΩ 1/10W J

⚠	Symbol No.	Part No.	Part Name	Description	
	RESISTOR				
	R1330	NRSA02J-103X	MG R	10kΩ 1/10W	J
	R1331	NRSA02J-562X	MG R	5.6kΩ 1/10W	J
	R1332	NRSA02J-103X	MG R	10kΩ 1/10W	J
	R1338-40	NRSA02J-103X	MG R	10kΩ 1/10W	J
	R1341-42	NRSA02J-391X	MG R	390Ω 1/10W	J
	R1343	NRSA02J-472X	MG R	4.7kΩ 1/10W	J
	R1345	NRSA02J-471X	MG R	470Ω 1/10W	J
	R1347	NRSA02J-224X	MG R	220kΩ 1/10W	J
	R1348	NRSA02J-103X	MG R	10kΩ 1/10W	J
	R1349	NRSA02J-472X	MG R	4.7kΩ 1/10W	J
	R1350	NRSA02J-223X	MG R	22kΩ 1/10W	J
	R1354-56	NRSA02J-103X	MG R	10kΩ 1/10W	J
	R1357	NRSA02J-684X	MG R	680kΩ 1/10W	J
	R1358	NRSA02J-472X	MG R	4.7kΩ 1/10W	J
	R1359	NRSA02J-103X	MG R	10kΩ 1/10W	J
	R1360	NRSA02J-102X	MG R	1kΩ 1/10W	J
	R1361	NRSA02J-681X	MG R	680Ω 1/10W	J
	R1362-63	NRSA02J-103X	MG R	10kΩ 1/10W	J
	R1364	NRSA02J-332X	MG R	3.3kΩ 1/10W	J
	R1365-67	NRSA02J-472X	MG R	4.7kΩ 1/10W	J
	R1368	NRSA02J-392X	MG R	3.9kΩ 1/10W	J
	R1369	NRSA02J-103X	MG R	10kΩ 1/10W	J
	R1370	NRSA02J-272X	MG R	2.7kΩ 1/10W	J
	R1371	NRSA02J-222X	MG R	2.2kΩ 1/10W	J
	R1372	NRSA02J-152X	MG R	1.5kΩ 1/10W	J
	R1373	NRSA02J-472X	MG R	4.7kΩ 1/10W	J
	R1374	NRSA02J-563X	MG R	56kΩ 1/10W	J
	R1375	NRSA02J-103X	MG R	10kΩ 1/10W	J
	R1376	NRSA02J-104X	MG R	100kΩ 1/10W	J
	R1377	NRSA02J-393X	MG R	39kΩ 1/10W	J
	R1378	NRSA02J-750X	MG R	75Ω 1/10W	J
	R1379	NRSA02J-103X	MG R	10kΩ 1/10W	J
	R1380	NRSA02J-821X	MG R	820Ω 1/10W	J
	R1381	QRE122J-151	C R	150Ω 1/2W	J
	R1382	NRSA02J-183X	MG R	18kΩ 1/10W	J
	R1390	NRSA02J-562X	MG R	5.6kΩ 1/10W	J
	R1391	NRSA02J-682X	MG R	6.8kΩ 1/10W	J
	R1392	NRSA02J-222X	MG R	2.2kΩ 1/10W	J
	R1393	NRSA02J-562X	MG R	5.6kΩ 1/10W	J
	R1394-95	NRSA02J-681X	MG R	680Ω 1/10W	J
	R1396	NRSA02J-393X	MG R	39kΩ 1/10W	J
	R1397-98	NRSA02J-0R0X	MG R	0.0Ω 1/10W	J
	R1601	NRSA02J-153X	MG R	15kΩ 1/10W	J
	R1602	NRSA02F-124X	MG R	120kΩ 1/10W	F
	R1603	NRSA02J-472X	MG R	4.7kΩ 1/10W	J
	R1604	NRSA02F-823X	MG R	82kΩ 1/10W	F
	R1605	NRSA02J-153X	MG R	15kΩ 1/10W	J
	R1606	NRSA02F-124X	MG R	120kΩ 1/10W	F
	R1607	NRSA02F-823X	MG R	82kΩ 1/10W	F
	R1608	NRSA02J-472X	MG R	4.7kΩ 1/10W	J
	R1609	NRSA02J-103X	MG R	10kΩ 1/10W	J
	R1611	NRSA02J-272X	MG R	2.7kΩ 1/10W	J
	R1612	NRSA02J-103X	MG R	10kΩ 1/10W	J
	R1613	NRSA02J-0R0X	MG R	0.0Ω 1/10W	J
	R1616	QRK126J-271X	C R	270Ω 1/2W	J
	R1617	NRSA02J-222X	MG R	2.2kΩ 1/10W	J
	R1618	NRSA02J-391X	MG R	390Ω 1/10W	J
	R1619	NRSA02J-123X	MG R	12kΩ 1/10W	J
⚠	R1620	QRJ146J-470X	C R	47Ω 1/4W	J
	R1622	NRSA02J-102X	MG R	1kΩ 1/10W	J
	R1623	NRSA02J-0R0X	MG R	0.0Ω 1/10W	J
	R1801	NRSA02J-331X	MG R	330Ω 1/10W	J
	R1802	NRSA02J-103X	MG R	10kΩ 1/10W	J
	R1803	NRSA02J-333X	MG R	33kΩ 1/10W	J
	R1804	NRSA02J-182X	MG R	1.8kΩ 1/10W	J
	R1805	NRSA02J-102X	MG R	1kΩ 1/10W	J
	R1806-07	NRSA02J-103X	MG R	10kΩ 1/10W	J
	R1808	NRSA02J-472X	MG R	4.7kΩ 1/10W	J
	R1810	NRSA02J-102X	MG R	1kΩ 1/10W	J

⚠	Symbol No.	Part No.	Part Name	Description		
	RESISTOR					
	R1811	NRSA02J-563X	MG R	56kΩ	1/10W	J
	R1812	NRSA02J-683X	MG R	68kΩ	1/10W	J
	R1813	NRSA02J-102X	MG R	1kΩ	1/10W	J
	R1814	NRSA02J-684X	MG R	680kΩ	1/10W	J
	R1815	NRSA02J-102X	MG R	1kΩ	1/10W	J
	R1816	NRSA02J-151X	MG R	150Ω	1/10W	J
	R1817	NRSA02J-822X	MG R	8.2kΩ	1/10W	J
	R1818	NRSA02J-273X	MG R	27kΩ	1/10W	J
	R1819-20	NRSA02J-681X	MG R	680Ω	1/10W	J
	R1821	NRSA02J-331X	MG R	330Ω	1/10W	J
	R1822	NRSA02J-562X	MG R	5.6kΩ	1/10W	J
	R1823	NRSA02J-223X	MG R	22kΩ	1/10W	J
	R1824	NRSA02J-123X	MG R	12kΩ	1/10W	J
	R1825-26	NRSA02J-562X	MG R	5.6kΩ	1/10W	J
	R1828	NRSA02J-562X	MG R	5.6kΩ	1/10W	J
	R1830-31	NRSA02J-562X	MG R	5.6kΩ	1/10W	J
	R1832	NRSA02J-183X	MG R	18kΩ	1/10W	J
	R1833-35	NRSA02J-104X	MG R	100kΩ	1/10W	J
	R1836	NRSA02J-393X	MG R	39kΩ	1/10W	J
	R1837	NRSA02J-102X	MG R	1kΩ	1/10W	J
	R1838	NRSA02J-103X	MG R	10kΩ	1/10W	J
	R1839	NRSA02J-472X	MG R	4.7kΩ	1/10W	J
	R1841	NRSA02J-104X	MG R	100kΩ	1/10W	J
	R1842	NRSA02J-564X	MG R	560kΩ	1/10W	J
	R1843-44	NRSA02J-102X	MG R	1kΩ	1/10W	J
	R1845	NRSA02J-273X	MG R	27kΩ	1/10W	J
	R1846-48	NRSA02J-104X	MG R	100kΩ	1/10W	J
	R1849	NRSA02J-273X	MG R	27kΩ	1/10W	J
	R1850	NRSA02J-104X	MG R	100kΩ	1/10W	J
	R1851	NRSA02J-332X	MG R	3.3kΩ	1/10W	J
	R1852	NRSA02J-102X	MG R	1kΩ	1/10W	J
	R1853	NRSA02J-104X	MG R	100kΩ	1/10W	J
	R1854	NRSA02J-102X	MG R	1kΩ	1/10W	J
	R1855-56	NRSA02J-563X	MG R	56kΩ	1/10W	J
	R1857-58	NRSA02J-104X	MG R	100kΩ	1/10W	J
	R1859	NRSA02J-102X	MG R	1kΩ	1/10W	J
	R1860	NRSA02J-273X	MG R	27kΩ	1/10W	J
	R1861-62	NRSA02J-104X	MG R	100kΩ	1/10W	J
	R1863	NRSA02J-102X	MG R	1kΩ	1/10W	J
	R1864	NRSA02J-563X	MG R	56kΩ	1/10W	J
	R1865	NRSA02J-104X	MG R	100kΩ	1/10W	J
	R1866-67	NRSA02J-102X	MG R	1kΩ	1/10W	J
	R1869	NRSA02J-333X	MG R	33kΩ	1/10W	J
	R1870	NRSA02J-221X	MG R	220Ω	1/10W	J
	R1871	QRE122J-750	C R	75Ω	1/2W	J
	R1873-74	NRSA02J-102X	MG R	1kΩ	1/10W	J
	R1875	NRSA02J-473X	MG R	47kΩ	1/10W	J
	R1876	NRSA02J-104X	MG R	100kΩ	1/10W	J
	R1877	NRSA02J-102X	MG R	1kΩ	1/10W	J
	R1878-81	NRSA02J-103X	MG R	10kΩ	1/10W	J
	CAPACITOR					
	C1001	QETN1HM-106Z	E CAP.	10μF	50V	M
	C1002	QETN1CM-107Z	E CAP.	100μF	16V	M
	C1003	QFV71HJ-104Z	MF CAP.	0.1μF	50V	J
	C1004	QETN1CM-107Z	E CAP.	100μF	16V	M
	C1005	QFV71HJ-104Z	MF CAP.	0.1μF	50V	J
	C1006	QETN1CM-107Z	E CAP.	100μF	16V	M
	C1007	QFV71HJ-104Z	MF CAP.	0.1μF	50V	J
	C1008	QETN1CM-107Z	E CAP.	100μF	16V	M
	C1009	QFV71HJ-104Z	MF CAP.	0.1μF	50V	J
	C1010	QETN1CM-337Z	E CAP.	330μF	16V	M
	C1011	QFV71HJ-104Z	MF CAP.	0.1μF	50V	J
	C1012	QETN1CM-107Z	E CAP.	100μF	16V	M
	C1013	QFV71HJ-104Z	MF CAP.	0.1μF	50V	J
	C1014	QETN1HM-105Z	E CAP.	1μF	50V	M
	C1015	NCB21HK-103X	C CAP.	0.01μF	50V	K

CAPACITOR

⚠ Symbol No.	Part No.	Part Name	Description
C1016-17	QETN1CM-337Z	E CAP.	330µF 16V M
C1018	QETN1EM-476Z	E CAP.	47µF 25V M
C1019	QETN1CM-337Z	E CAP.	330µF 16V M
C1101	QETN1HM-475Z	E CAP.	4.7µF 50V M
C1102	NDC21HJ-181X	C CAP.	180pF 50V J
C1103	QETN1HM-475Z	E CAP.	4.7µF 50V M
C1104	NDC21HJ-181X	C CAP.	180pF 50V J
C1105-06	QETN1CM-336Z	E CAP.	33µF 16V M
C1107	NDC21HJ-181X	C CAP.	180pF 50V J
C1108	QETN1CM-107Z	E CAP.	100µF 16V M
C1109	NDC21HJ-470X	C CAP.	47pF 50V J
C1201	NDC21HJ-680X	C CAP.	68pF 50V J
C1202	QETN1CM-107Z	E CAP.	100µF 16V M
C1203	QENC1HM-105Z	BP E CAP.	1µF 50V M
C1204	NDC21HJ-181X	C CAP.	180pF 50V J
C1205	QENC1CM-476Z	BP E CAP.	47µF 16V M
C1206	NDC21HJ-560X	C CAP.	56pF 50V J
C1207	NDC21HJ-181X	C CAP.	180pF 50V J
C1208	QETN1HM-105Z	E CAP.	1µF 50V M
C1209	QETN1HM-106Z	E CAP.	10µF 50V M
C1210	QENC1CM-476Z	BP E CAP.	47µF 16V M
C1211	QETN1HM-105Z	E CAP.	1µF 50V M
C1212	NDC21HJ-470X	C CAP.	47pF 50V J
C1213	QETN1HM-105Z	E CAP.	1µF 50V M
C1214	NDC21HJ-102X	C CAP.	1000pF 50V J
C1215	QETN1HM-105Z	E CAP.	1µF 50V M
C1216-17	QENC1CM-476Z	BP E CAP.	47µF 16V M
C1218	QETN1HM-475Z	E CAP.	4.7µF 50V M
C1219	NDC21HJ-181X	C CAP.	180pF 50V J
C1220	QETN1EM-476Z	E CAP.	47µF 25V M
C1221	NDC21HJ-181X	C CAP.	180pF 50V J
C1222	QETN1CM-107Z	E CAP.	100µF 16V M
C1223-24	NDC21HJ-181X	C CAP.	180pF 50V J
C1225	NDC21HJ-390X	C CAP.	39pF 50V J
C1226	QAT7003-450	TRIM.CAP.	45pF 100V
C1227	NDC21HJ-561X	C CAP.	560pF 50V J
C1228-29	NDC21HJ-181X	C CAP.	180pF 50V J
C1230	QETN1CM-107Z	E CAP.	100µF 16V M
C1231	NCB21HK-103X	C CAP.	0.01µF 50V K
C1232	QETN1HM-475Z	E CAP.	4.7µF 50V M
C1233	NDC21HJ-5R0X	C CAP.	5.0pF 50V J
C1234	QFV71HJ-684Z	MF CAP.	0.68µF 50V J
C1301	NCB21HK-103X	C CAP.	0.01µF 50V K
C1302	NDC21HJ-221X	C CAP.	220pF 50V J
C1303	QFV71HJ-104Z	MF CAP.	0.1µF 50V J
C1305-09	NCB21HK-103X	C CAP.	0.01µF 50V K
C1311	NDC21HJ-680X	C CAP.	68pF 50V J
C1312-14	QAT7003-450	TRIM.CAP.	45pF 100V
C1315	NDC21HJ-680X	C CAP.	68pF 50V J
C1316	NCB21HK-103X	C CAP.	0.01µF 50V K
C1317	NDC21HJ-221X	C CAP.	220pF 50V J
C1318	NCB21HK-223X	C CAP.	0.022µF 50V K
C1319	NDC21HJ-101X	C CAP.	100pF 50V J
C1320	QETN1HM-474Z	E CAP.	0.47µF 50V M
C1321-23	NCB21HK-103X	C CAP.	0.01µF 50V K
C1324	QENC1EM-106Z	BP E CAP.	10µF 25V M
C1325	NCB21HK-153X	C CAP.	0.015µF 50V K
C1327	QAT7003-450	TRIM.CAP.	45pF 100V
C1328	NDC21HJ-220X	C CAP.	22pF 50V J
C1329	QAT7003-450	TRIM.CAP.	45pF 100V
C1330	NDC21HJ-220X	C CAP.	22pF 50V J
C1331	NDC21HJ-470X	C CAP.	47pF 50V J
C1332	NCB21HK-103X	C CAP.	0.01µF 50V K
C1335	NDC21HJ-561X	C CAP.	560pF 50V J
C1336	QETN1CM-337Z	E CAP.	330µF 16V M
C1337	NCB21HK-103X	C CAP.	0.01µF 50V K
C1339	NCB21HK-103X	C CAP.	0.01µF 50V K
C1340-43	NDC21HJ-390X	C CAP.	39pF 50V J
C1344	NDC21HJ-151X	C CAP.	150pF 50V J
C1601-02	QETN1HM-105Z	E CAP.	1µF 50V M
C1603-04	NDC21HJ-390X	C CAP.	39pF 50V J
C1605-06	NDC21HJ-181X	C CAP.	180pF 50V J

CAPACITOR

⚠ Symbol No.	Part No.	Part Name	Description
C1608	QETN1HM-105Z	E CAP.	1µF 50V M
C1609	QETN1CM-337Z	E CAP.	330µF 16V M
C1610	NDC21HJ-102X	C CAP.	1000pF 50V J
C1611	QETN1HM-475Z	E CAP.	4.7µF 50V M
C1612	QETN1HM-106Z	E CAP.	10µF 50V M
C1613	QEHR1EM-108Z	E CAP.	1000µF 25V M
C1614	QETN1AM-337Z	E CAP.	330µF 10V M
C1615-16	NCS21HJ-391X	C CAP.	390pF 50V J
C1617	NCB21HK-473X	C CAP.	0.047µF 50V K
C1801	QETN1CM-107Z	E CAP.	100µF 16V M
C1802	NDC21HJ-181X	C CAP.	180pF 50V J
C1803	NCB21HK-102X	C CAP.	1000pF 50V K
C1804	QETN1HM-105Z	E CAP.	1µF 50V M
C1805	NDC21HJ-181X	C CAP.	180pF 50V J
C1807	QFV71HJ-334Z	MF CAP.	0.33µF 50V J
C1808	QETN1HM-335Z	E CAP.	3.3µF 50V M
C1809	NCB21HK-472X	C CAP.	4700pF 50V K
C1810	NCB21HK-102X	C CAP.	1000pF 50V K
C1811	NDC21HJ-221X	C CAP.	220pF 50V J
C1812	NDC21HJ-102X	C CAP.	1000pF 50V J
C1813	NCB21HK-153X	C CAP.	0.015µF 50V K
C1814	NCB21HK-222X	C CAP.	2200pF 50V K
C1815	NDC21HJ-101X	C CAP.	100pF 50V J
C1816	NDC21HJ-470X	C CAP.	47pF 50V J
C1817	NDC21HJ-390X	C CAP.	39pF 50V J
C1818	NDC21HJ-101X	C CAP.	100pF 50V J
C1819	QENC1CM-476Z	BP E CAP.	47µF 16V M
C1820	NDC21HJ-560X	C CAP.	56pF 50V J
C1821	NDC21HJ-101X	C CAP.	100pF 50V J
C1822	NCB21HK-562X	C CAP.	5600pF 50V K
C1823	NDC21HJ-102X	C CAP.	1000pF 50V J

TRANSFORMER

T1301	CELT034-001	B.PASS TRANSF.	
T1302	CELT034-002	B.PASS TRANSF.	
T1303	CE40176-001J1	DL P TRANSF.	

COIL

L1201	QQL01BK-270Z	PEAKING COIL	27µH
L1202	QQL01BK-101Z	PEAKING COIL	100µH
L1203	QQL01BK-220Z	PEAKING COIL	22µH
L1204	QQL01BK-180Z	PEAKING COIL	18µH
L1301	QQL01BK-180Z	PEAKING COIL	18µH
L1302-03	QQL01BK-8R2Z	PEAKING COIL	8.2µH
L1305	QQL01BK-4R7Z	PEAKING COIL	4.7µH
L1306-07	QQL01BK-221Z	PEAKING COIL	220µH
L1308	QQL01BK-560Z	PEAKING COIL	56µH
L1601	QQL01BK-4R7Z	PEAKING COIL	4.7µH

DIODE

D1001-19	1SS353-X	SI.DIODE	
D1022-28	1SS353-X	SI.DIODE	
D1031	1SS353-X	SI.DIODE	
D1101-04	1SS353-X	SI.DIODE	
D1204-05	1SS353-X	SI.DIODE	
D1208	MA3056/H/-X	ZENER DIODE	
D1303-08	1SS353-X	SI.DIODE	
D1310	MA3091/M/-X	ZENER DIODE	
D1601	MA3150/M/-X	ZENER DIODE	
D1801-05	1SS353-X	SI.DIODE	

TRANSISTOR

Q1001	2SA1037AK/QR/-X	SI.TRANSISTOR	
Q1005	2SC2412K/QR/-X	SI.TRANSISTOR	

⚠	Symbol No.	Part No.	Part Name	Description
	TRANSISTOR			
	Q1006-07	DTC144EKA-X	DIGI.TRANSISTOR	
	Q1008	2SA1037AK/QR/-X	SI.TRANSISTOR	
	Q1001	2SA1037AK/QR/-X	SI.TRANSISTOR	
	Q1005	2SC2412K/QR/-X	SI.TRANSISTOR	
	Q1006-07	DTC144EKA-X	DIGI.TRANSISTOR	
	Q1008	2SA1037AK/QR/-X	SI.TRANSISTOR	
	Q1009	2SC2412K/QR/-X	SI.TRANSISTOR	
	Q1010	2SA1037AK/QR/-X	SI.TRANSISTOR	
	Q1011-12	2SC2412K/QR/-X	SI.TRANSISTOR	
	Q1013	2SA1037AK/QR/-X	SI.TRANSISTOR	
	Q1014-16	2SC2412K/QR/-X	SI.TRANSISTOR	
	Q1017	2SA1037AK/QR/-X	SI.TRANSISTOR	
	Q1018-20	2SC2412K/QR/-X	SI.TRANSISTOR	
	Q1021	2SA1037AK/QR/-X	SI.TRANSISTOR	
	Q1022-23	2SC2412K/QR/-X	SI.TRANSISTOR	
	Q1024-25	DTC144EKA-X	DIGI.TRANSISTOR	
	Q1101-04	2SC2412K/QR/-X	SI.TRANSISTOR	
	Q1201-04	2SC2412K/QR/-X	SI.TRANSISTOR	
	Q1205	DTC144EKA-X	DIGI.TRANSISTOR	
	Q1206	2SC2412K/QR/-X	SI.TRANSISTOR	
	Q1207	DTC144EKA-X	DIGI.TRANSISTOR	
	Q1208	2SC2412K/QR/-X	SI.TRANSISTOR	
	Q1209	2SA1037AK/QR/-X	SI.TRANSISTOR	
	Q1210	2SC2412K/QR/-X	SI.TRANSISTOR	
	Q1211	2SA1037AK/QR/-X	SI.TRANSISTOR	
	Q1212-20	2SC2412K/QR/-X	SI.TRANSISTOR	
	Q1222-25	2SC2412K/QR/-X	SI.TRANSISTOR	
	Q1301-02	2SC2412K/QR/-X	SI.TRANSISTOR	
	Q1304-07	2SC2412K/QR/-X	SI.TRANSISTOR	
	Q1310-13	DTC144EKA-X	DIGI.TRANSISTOR	
	Q1314-15	2SA1037AK/QR/-X	SI.TRANSISTOR	
	Q1316	DTC144EKA-X	DIGI.TRANSISTOR	
	Q1320-21	DTC144EKA-X	DIGI.TRANSISTOR	
	Q1601-02	2SC2412K/QR/-X	SI.TRANSISTOR	
	Q1603	DTC144EKA-X	DIGI.TRANSISTOR	
	Q1801	2SC2412K/QR/-X	SI.TRANSISTOR	
	Q1802	DTC144EKA-X	DIGI.TRANSISTOR	
	Q1803-04	2SC2412K/QR/-X	SI.TRANSISTOR	
	Q1805-06	2SA1037AK/QR/-X	SI.TRANSISTOR	
	Q1807-10	2SC2412K/QR/-X	SI.TRANSISTOR	
	Q1811-14	DTC144EKA-X	DIGI.TRANSISTOR	
	IC			
	IC1101	LA7016	I.C.(MONO-ANA)	
	IC1201-02	TC4066BF/N/-XE	I.C.(DIGI-MOS)	
	IC1203	AN5613	I.C.(MONO-ANA)	
	IC1301-02	TC4066BF/N/-XE	I.C.(DIGI-MOS)	
	IC1303	AN5625N	I.C.(MONO-ANA)	
	IC1601	TC4066BF/N/-XE	I.C.(DIGI-MOS)	
	IC1602	AN5265	I.C.(MONO-ANA)	
	IC1801	TC4066BF/N/-XE	I.C.(DIGI-MOS)	
	IC1802	TC4538BF/N/-XE	I.C.(DIGI-MOS)	
	IC1803	TC4066BF/N/-XE	I.C.(DIGI-MOS)	
	IC1804-07	TC4538BF/N/-XE	I.C.(DIGI-MOS)	
	OTHERS			
	DL1201	CE42099-003J1	DELAY LINE	
	DL1301	CE40907-B01	DELAY LINE(1H)	
	DL1302	CE41489-001	DELAY LINE(1H)	
	J1001	QMCC503-C01	DIN JACK	(TALLY/REMOTE)
	J1101	CEMB021-002	BNC CONNECTOR	(INPUT A)
	J1102	CEMB021-002	BNC CONNECTOR	(INPUT B)
	J1601	CEMN036-005	PIN JACK	(AUDIO)
	J1801	CEMB021-002	BNC CONNECTOR	(EXT SYNC)
	S1001	QSS1F22-C07	SLIDE SWITCH	(AFC)
	S1002	QSS1F22-C07	SLIDE SWITCH	(VIDEO/SDI SW)
	S1201	QSTQ101-C02	PUSH SWITCH	(SET UP)
	S1301	QSL4A13-C03Z	LEVER SWITCH	(APC SW1)
	S1302	QSL4A13-C03Z	LEVER SWITCH	(APC SW2)
⚠	TH1001	QAD0015-503	N.THERMISTOR	
	X1301	CE40749-001Z	CRYSTAL	
	X1302	CE40668-001Z	CRYSTAL	

MAIN PW BOARD ASS'Y (FX-2062A-H2)

⚠	Symbol No.	Part No.	Part Name	Description
	VARIABLE RESISTOR			
	R2303	QVP0070-103	V R(R CUT OFF)	10kΩ
	R2306	QVP0070-201	V R(R DRIVE)	200Ω
	R2313	QVP0070-103	V R(G CUT OFF)	10kΩ
	R2316	QVP0070-201	V R(G DRIVE)	200Ω
	R2323	QVP0070-103	V R(B CUT OFF)	10kΩ
	R2415	QVP0053-501Z	V R(V.LIN)	500 Ω
	R2417	QVP0053-501Z	V R(V.SIZE)	500 Ω
	R2420	QVP0053-102Z	V R(V.SIZE UNDER)	1kΩ
	R2427	QVP0053-501Z	V R(V.CENT)	500 Ω
	R2510	QVP0053-502Z	V R(H.HOLD)	5kΩ
	R2514	QVP0053-103Z	V R(H.POSI)	10kΩ
	RESISTOR			
	R2301	QRE141J-221Y	C R	220Ω 1/4W J
	R2302	QRE141J-102Y	C R	1kΩ 1/4W J
	R2304	QRL029J-822	OM R	8.2kΩ 2W J
	R2305	QRC121K-332Z	COMP.R	3.3kΩ 1/2W K
	R2307-08	QRE141J-221Y	C R	220Ω 1/4W J
	R2311	QRE141J-221Y	C R	220Ω 1/4W J
	R2312	QRE141J-102Y	C R	1kΩ 1/4W J
	R2314	QRL029J-822	OM R	8.2kΩ 2W J
	R2315	QRC121K-332Z	COMP.R	3.3kΩ 1/2W K
	R2317	QRE141J-221Y	C R	220Ω 1/4W J
	R2318	QRE141J-122Y	C R	1.2kΩ 1/4W J
	R2321	QRE141J-221Y	C R	220Ω 1/4W J
	R2322	QRE141J-102Y	C R	1kΩ 1/4W J
	R2324	QRL029J-822	OM R	8.2kΩ 2W J
	R2325	QRC121K-332Z	COMP.R	3.3kΩ 1/2W K
	R2326	QRE141J-151Y	C R	150Ω 1/4W J
	R2327	QRE141J-221Y	C R	220Ω 1/4W J
	R2346	QRC121K-474Z	COMP.R	470kΩ 1/2W K
	R2347	QRC121K-332Z	COMP.R	3.3kΩ 1/2W K
	R2348	QRC121K-565Z	COMP.R	5.6MΩ 1/2W K
	R2350-52	QRE141J-222Y	C R	2.2kΩ 1/4W J
	R2401	QRE141J-153Y	C R	15kΩ 1/4W J
	R2402	QRE141J-103Y	C R	10kΩ 1/4W J
	R2403	QRE141J-272Y	C R	2.7kΩ 1/4W J
	R2404	QRE141J-822Y	C R	8.2kΩ 1/4W J
	R2405	QRE121J-121Y	C R	120Ω 1/2W J
	R2406	QRE141J-473Y	C R	47kΩ 1/4W J
	R2407	QRE141J-152Y	C R	1.5kΩ 1/4W J
	R2408	QRE141J-103Y	C R	10kΩ 1/4W J
	R2409	QRE141J-272Y	C R	2.7kΩ 1/4W J
	R2410	QRE141J-682Y	C R	6.8kΩ 1/4W J
	R2411	QRE141J-122Y	C R	1.2kΩ 1/4W J
	R2412	QRE141J-822Y	C R	8.2kΩ 1/4W J
	R2413	QRE141J-273Y	C R	27kΩ 1/4W J
	R2414	QRE141J-331Y	C R	330Ω 1/4W J
	R2418	QRE141J-153Y	C R	15kΩ 1/4W J
	R2419	QRE141J-103Y	C R	10kΩ 1/4W J
	R2421	QRX01GJ-4R7	MF R	4.7Ω 1W J
	R2422	QRE141J-103Y	C R	10kΩ 1/4W J
	R2423	QRE141J-153Y	C R	15kΩ 1/4W J
	R2424	QRE141J-103Y	C R	10kΩ 1/4W J
	R2426	QRE121J-331Y	C R	330Ω 1/2W J
	R2428	QRE121J-331Y	C R	330Ω 1/2W J
	R2429	QRE121J-102Y	C R	1kΩ 1/2W J
	R2430	QRE141J-684Y	C R	680kΩ 1/4W J
	R2431	QRE141J-823Y	C R	82kΩ 1/4W J
	R2432	QRE141J-473Y	C R	47kΩ 1/4W J
	R2433	QRE141J-564Y	C R	560kΩ 1/4W J
	R2434	QRE141J-104Y	C R	100kΩ 1/4W J
	R2436-37	QRE141J-472Y	C R	4.7kΩ 1/4W J
	R2438	QRE121J-222Y	C R	2.2kΩ 1/2W J
	R2439-40	QRE141J-334Y	C R	330kΩ 1/4W J
	R2501	QRE141J-101Y	C R	100Ω 1/4W J
	R2502	QRE141J-683Y	C R	68kΩ 1/4W J
	R2503	QRE141J-472Y	C R	4.7kΩ 1/4W J

RESISTOR

⚠	Symbol No.	Part No.	Part Name	Description	
	R2504	QRE141J-183Y	C R	18kΩ 1/4W	J
	R2505	QRE141J-153Y	C R	15kΩ 1/4W	J
	R2506	QRE141J-472Y	C R	4.7kΩ 1/4W	J
	R2507	QRE141J-123Y	C R	12kΩ 1/4W	J
	R2508	QRE141J-683Y	C R	68kΩ 1/4W	J
	R2509	QRE141J-103Y	C R	10kΩ 1/4W	J
	R2511	QRE141J-222Y	C R	2.2kΩ 1/4W	J
	R2512	QRE141J-223Y	C R	22kΩ 1/4W	J
	R2513	QRE141J-222Y	C R	2.2kΩ 1/4W	J
	R2515	QRE141J-682Y	C R	6.8kΩ 1/4W	J
⚠	R2516	QRA14CF-2701Y	MF R	2.7kΩ 1/4W	F
⚠	R2517	QRA14CF-6801Y	MF R	6.8kΩ 1/4W	F
⚠	R2518	QRZ9017-4R7	F R	4.7Ω 1/4W	J
⚠	R2519	QRZ9021-120	F R	12Ω 1W	J
	R2520	QRE141J-2R7Y	C R	2.7Ω 1/4W	J
⚠	R2521	QRZ9021-3R3	F R	3.3Ω 1W	J
	R2522	QRE141J-124Y	C R	120kΩ 1/4W	J
	R2523	QRE141J-154Y	C R	150kΩ 1/4W	J
	R2524	QRE121J-472Y	C R	4.7kΩ 1/2W	J
	R2525	QRE121J-181Y	C R	180Ω 1/2W	J
	R2526	QRE141J-391Y	C R	390Ω 1/4W	J
	R2527	QRE141J-151Y	C R	150Ω 1/4W	J
	R2528	QRE121J-561Y	C R	560Ω 1/2W	J
⚠	R2529	QRZ9017-2R2	F R	2.2 Ω 1/4W	J
	R2530	QRX01GJ-5R6	MF R	5.6Ω 1W	J
	R2531	QRG029J-331	OM R	330 Ω 2W	J
	R2532	QRG01GJ-122	OM R	1.2kΩ 1W	J
	R2533	QRG01GJ-681	OM R	680Ω 1W	J
	R2545	QRE141J-102Y	C R	1kΩ 1/4W	J
	R2902	QRF074K-3R3	UNF R	3.3Ω 7W	K
	R2903	QRL039J-223	OM R	22kΩ 3W	J
	R2904	QRE121J-184Y	C R	180kΩ 1/2W	J
	R2906	QRG029J-473	OM R	47kΩ 2W	J
	R2909	QRM059J-R33	MP R	0.33Ω 5W	J
⚠	R2911	QRZ9017-4R7	F R	4.7Ω 1/4W	J
	R2932	QRX01GJ-1R0	MF R	1.0Ω 1W	J
	R2934	QRE121J-272Y	C R	2.7kΩ 1/2W	J
	R2935	QRE121J-223Y	C R	22kΩ 1/2W	J
	R2936	QRE141J-223Y	C R	22kΩ 1/4W	J
	R2938	QRE121J-562Y	C R	5.6kΩ 1/2W	J
	R2940-41	QRE141J-223Y	C R	22kΩ 1/4W	J
	R2942	QRE141J-103Y	C R	10kΩ 1/4W	J
	R2943	QRE141J-333Y	C R	33kΩ 1/4W	J
	R2944	QRE141J-563Y	C R	56kΩ 1/4W	J
	R2945	QRE141J-683Y	C R	68kΩ 1/4W	J
	R2946	QRE141J-473Y	C R	47kΩ 1/4W	J

CAPACITOR

⚠	Symbol No.	Part No.	Part Name	Description	
	C2303-04	QCS31HJ-181Z	C CAP.	180pF 50V	J
	C2305	QCS31HJ-221Z	C CAP.	220pF 50V	J
	C2306	QEHR2EM-105Z	E CAP.	1μF 250V	M
	C2307	QCZ0324-102	C CAP.	1000pF 3kV	P
	C2309	QEHR2EM-475Z	E CAP.	4.7μF 250V	M
	C2310	QEHR1CM-107Z	E CAP.	100μF 16V	M
	C2402	QFLC1HJ-103Z	M CAP.	0.01μF 50V	J
	C2403	QETN1HM-105Z	E CAP.	1μF 50V	M
	C2404	QFLC1HJ-682Z	M CAP.	6800pF 50V	J
	C2405	QETN1CM-337Z	E CAP.	330μF 16V	M
	C2407	QBTC1VK-105Z	TAN.CAP.	1μF 35V	K
	C2408	QFLC1HJ-223Z	M CAP.	0.022μF 50V	J
	C2409-10	QFLC1HJ-103Z	M CAP.	0.01μF 50V	J
	C2411	QETN1HM-225Z	E CAP.	2.2μF 50V	M
	C2412	QCB32HK-471Z	C CAP.	470pF 500V	K
	C2413	QETN1HM-107Z	E CAP.	100μF 50V	M
	C2414	QFLC2AJ-223Z	M CAP.	0.022μF 100V	J
	C2415	QETN1HM-106Z	E CAP.	10μF 50V	M
	C2416	QETN1EM-477Z	E CAP.	470μF 25V	M
	C2417	QETN1HM-226Z	E CAP.	22μF 50V	M

CAPACITOR

⚠	Symbol No.	Part No.	Part Name	Description	
	C2419	QCS32HJ-470Z	C CAP.	47pF 500V	J
	C2501	QETN1HM-106Z	E CAP.	10μF 50V	M
	C2502	QFLC1HJ-563Z	M CAP.	0.056μF 50V	J
	C2503	QFLC1HJ-682Z	M CAP.	6800pF 50V	J
	C2504	QETN1HM-105Z	E CAP.	1μF 50V	M
	C2505	QFP31HJ-332Z	PP CAP.	3300pF 50V	J
	C2506	QFLC1HJ-222Z	M CAP.	2200pF 50V	J
	C2507	QETN1AM-107Z	E CAP.	100μF 10V	M
	C2508	QFV71HJ-474Z	MF CAP.	0.47μF 50V	J
	C2509	QCS31HJ-121Z	C CAP.	120pF 50V	J
	C2510	QFLC1HJ-123Z	M CAP.	0.012μF 50V	J
	C2511	QETN1CM-337Z	E CAP.	330μF 16V	M
	C2512	QFLC1HJ-393Z	M CAP.	0.039μF 50V	J
	C2513	QFLC1HJ-152Z	M CAP.	1500pF 50V	J
	C2514	QCS31HJ-151Z	C CAP.	150pF 50V	J
	C2515	QETN1VM-107Z	E CAP.	100μF 35V	M
	C2516	QCB32HK-102Z	C CAP.	1000pF 500V	K
	C2517	QETN1EM-477Z	E CAP.	470μF 25V	M
	C2518	QCB32HK-102Z	C CAP.	1000pF 500V	K
	C2519	QETM1VM-108	E CAP.	1000μF 35V	M
	C2520	QFV71HJ-124Z	MF CAP.	0.12μF 50V	J
	C2521	QETN1EM-476Z	E CAP.	47μF 25V	M
	C2522	QETN1CM-477Z	E CAP.	470μF 16V	M
	C2523	QCB32HK-102Z	C CAP.	1000pF 500V	K
	C2524	QETN1HM-474Z	E CAP.	0.47μF 50V	M
	C2525	QFLC1HJ-473Z	M CAP.	0.047μF 50V	J
	C2526	QETN1HM-106Z	E CAP.	10μF 50V	M
	C2527	QFN32AK-472Z	M CAP.	4700pF 100V	K
	C2528	QFN32AK-822Z	M CAP.	8200pF 100V	K
⚠	C2530	QFZ0117-3801	MPP CAP.	3800pF1.4kVH±2.5%	
	C2531	QFN32DK-103	M CAP.	0.01μF 200V	K
	C2532	QFLC2AK-563Z	M CAP.	0.056μF 100V	K
	C2533	QETN2EM-106Z	E CAP.	10μF 250V	M
	C2534	QFZ0119-224	MPP CAP.	0.22μF 200V ±3%	
⚠	C2907	QCZ9078-472	C CAP.	4700pFAC250V	M
⚠	C2908	QCZ9078-472	C CAP.	4700pFAC250V	M
⚠	C2909	QCZ9078-472	C CAP.	4700pFAC250V	M
⚠	C2910	QCZ9078-472	C CAP.	4700pFAC250V	M
	C2911	QEZ0418-227	E CAP.	220μF 400V	M
	C2912	QCZ0334-103	C CAP.	0.01μF 500V	P
	C2913	QCZ0325-271	C CAP.	270pF 2kV	K
	C2916	QCZ0325-151	C CAP.	150pF 2kV	K
	C2918	QCB32HK-471Z	C CAP.	470pF 500V	K
	C2923	QETN1EM-227Z	E CAP.	220μF 25V	M
	C2931	QCB32HK-681Z	C CAP.	680pF 500V	K
	C2932	QETN1HM-476Z	E CAP.	47μF 50V	M
	C2934	QCZ0122-561	C CAP.	560pF 2kV	K
	C2936	QEZ0203-107	E CAP.	100μF 160V	M
	C2937	QETN1CM-107Z	E CAP.	100μF 16V	M
	C2938	QFN32DK-473	M CAP.	0.047μF 200V	K
	C2939	QETN1EM-476Z	E CAP.	47μF 25V	M
	C2940	QEZ0203-107	E CAP.	100μF 160V	M

TRANSFORMER

⚠	Symbol No.	Part No.	Part Name	Description
⚠	T2501	CE41106-00CJ1	DRIVE TRANSF.	
⚠	T2502	CJ28347-00B	H.V.TRANSF.	
⚠	T2901	CETS034-001J2	SWITCH.TRANSF.	

COIL

⚠	Symbol No.	Part No.	Part Name	Description
	L2301-03	QQL01BK-271Z	PEAKING COIL	270μH
⚠	L2501	CE40140-00FJ1	WIDTH COIL	
⚠	L2502	CELL016-001	LINEARITY COIL	
	L2931	QQL42AK-820Z	CHOKE COIL	

⚠	Symbol No.	Part No.	Part Name	Description
	DIODE			
	D2305	RGP10J-5025-T3	SI.DIODE	
	D2401	1SS133-T2	SI.DIODE	
	D2402	MA4051/M/-T2	ZENER DIODE	
	D2403	1SR35-400A-T2	SI.DIODE	
	D2404	1SS133-T2	SI.DIODE	
⚠	D2501	MA4068N/Z1/-T2	ZENER DIODE	
	D2502	1SS81-T2	SI.DIODE	
	D2503-04	RGP10J-5025-T3	SI.DIODE	
	D2505	RU30-F1	SI.DIODE	
	D2506	RK14-T3	SI.DIODE	
	D2507	MTZJ11C-T2	ZENER DIODE	
	D2508	RGP10J-5025-T3	SI.DIODE	
	D2509	ERD07-15-L	SI.DIODE	
	D2510	RU2-T3	SI.DIODE	
	D2511	RH1S-T3	SI.DIODE	
	D2512	1SS133-T2	SI.DIODE	
	D2513	1SR124-400A-T2	SI.DIODE	
⚠	D2901	S1VBA60	BRIDGE DIODE	
	D2902	RU1C-LFC4	SI.DIODE	
	D2905	AU01Z-T2	SI.DIODE	
	D2931	RGP10J-5025-T3	SI.DIODE	
	D2932	RU3AM-LFC4	SI.DIODE	
	D2933	MA4180/M/-T2	ZENER DIODE	
	D2935	MA4051/M/-T2	ZENER DIODE	
	D2936	1SS133-T2	SI.DIODE	
	D2965	1SS133-T2	SI.DIODE	
	TRANSISTOR			
	Q2301-03	2SC2611	SI.TRANSISTOR	
	Q2401	2SC1740S/QR/-T	SI.TRANSISTOR	
	Q2402	2SD1853-T	SI.TRANSISTOR	
	Q2403	DTC124ESA-T	DIGI.TRANSISTOR	
	Q2501	2SC1740S/QR/-T	SI.TRANSISTOR	
	Q2502	DTC124ESA-T	DIGI.TRANSISTOR	
	Q2503	2SC2655/Y/-T	SI.TRANSISTOR	
⚠	Q2504	2SD1878-YD	SI.TRANSISTOR	H.OUT
	Q2505	IRF620	F.E.T.	
	Q2506	2SC2482/Z1/-T	SI.TRANSISTOR	
⚠	Q2901	IRFIBC40G	F.E.T.	
	Q2931	2SA949/Y/Z1-T	SI.TRANSISTOR	
	Q2932	2SC2229/Y/	SI.TRANSISTOR	
	Q2933	DTC124ESA-T	DIGI.TRANSISTOR	
	Q2934	2SC1740S/QR/-T	SI.TRANSISTOR	
	Q2935	2SA933AS/QR/-T	SI.TRANSISTOR	
	IC			
	IC2401	LA7830	I.C.(MONO-ANA)	
	IC2402	TC4052BP/N/	I.C.(DIGI-OTHER)	
	IC2501	HA11423	I.C.(MONO-ANA)	
	IC2502	AN7812F	I.C.(MONO-ANA)	
	IC2931	S1854-C1	I.C.(MONO-ANA)	
	OTHERS			
⚠	CP2931	ICP-N38-Y	I.C.PROTECT	
	K2401-02	CE41433-001Z	BEADS CORE	
	K2901	CE42050-001Z	CORE	
	K2903	CE42050-001Z	CORE	
	K2931	CE42050-001Z	CORE	
	K2933	CE42050-001Z	CORE	
⚠	PC2901	CNY17F-C1	I.C.(PH.COUPLER)	
	S2501	QSL4A13-C03Z	LEVER SWITCH	(H.SYNC SW)
	S2502	QSL4A13-C03Z	LEVER SWITCH	(H.CENT SW)
⚠	SK2001	CE42554-001	C.R.T.SOCKET	
⚠	TH2901	CEKP003-001	P.THERMISTOR	

CONTROL PW BOARD ASS'Y (FX-4044A-H2)

⚠	Symbol No.	Part No.	Part Name	Description
	VARIABLE RESISTOR			
	R4002	QVGA004-CB14A	V R(VOLUME)	10kΩ
	R4006	QVP0053-103Z	V R(SUB PHASE)	10kΩ
	R4007	QVGA003-CB14A	V R(PHASE)	10kΩ
	R4010	QVGA003-CB14A	V R(CHROMA)	10kΩ
	R4012	QVP0053-103Z	V R(SUB CHROMA PAL)	10kΩ
	R4015	QVP0053-103Z	V R(SUB CHROMA NTSC)	10kΩ
	R4020	QVGA003-CB14A	V R(BRIGHT)	10kΩ
	R4022	QVP0053-103Z	V R(SUB BRIGHT)	10kΩ
	R4025	QVGA003-CB14A	V R(CONTRAST)	10kΩ
	R4026	QVP0053-103Z	V R(SUB CONT.)	10kΩ
	R4029	QVP0053-502Z	V R(V.HOLD)	5kΩ
	RESISTOR			
	R4001	NRSA02J-183X	MG R	18kΩ 1/10W J
	R4003	NRSA02J-0R0X	MG R	0.0Ω 1/10W J
	R4004	NRSA02J-222X	MG R	2.2kΩ 1/10W J
	R4008	NRSA02J-272X	MG R	2.7kΩ 1/10W J
	R4009	NRSA02J-102X	MG R	1kΩ 1/10W J
	R4013	NRSA02J-102X	MG R	1kΩ 1/10W J
	R4016	NRSA02J-102X	MG R	1kΩ 1/10W J
	R4017	NRSA02J-103X	MG R	10kΩ 1/10W J
	R4018	NRSA02J-222X	MG R	2.2kΩ 1/10W J
	R4019	NRSA02J-273X	MG R	27kΩ 1/10W J
	R4021	NRSA02J-153X	MG R	15kΩ 1/10W J
	R4023	NRSA02J-153X	MG R	15kΩ 1/10W J
	R4024	NRSA02J-0R0X	MG R	0.0Ω 1/10W J
	R4027	NRSA02J-221X	MG R	220Ω 1/10W J
	R4028	NRSA02J-182X	MG R	1.8kΩ 1/10W J
	R4031	NRSA02J-183X	MG R	18kΩ 1/10W J
	CAPACITOR			
	C4001	QER51CM-226	E CAP.	22µF 16V M
	C4002	QFV71HJ-104Z	MF CAP.	0.1µF 50V J
	DIODE			
	D4001	SML1216W	L.E.D.	
	TRANSISTOR			
	Q4001-03	DTC144EKA-X	DIGI.TRANSISTOR	
	OTHERS			
		CM46942-A01-H	LED HOLDER	
	CN400A	QGF1220C2-19	FFC CONNECTOR	
	S4001	QSW0379-001	PUSH SWITCH	(UNDER SCAN, PULSE CROSS, COLOR OFF, BLUE CHECK)
	S4002	QSW0379-001	PUSH SWITCH	(INPUT A/B, EXT SYNC, NTSC/PAL, 4:3/16:9)
	W4001-09	NRSA02J-0R0X	MG R	0.0Ω 1/10W J
	W4012-17	NRSA02J-0R0X	MG R	0.0Ω 1/10W J
	W4020	NRSA02J-0R0X	MG R	0.0Ω 1/10W J
	W4024-34	NRSA02J-0R0X	MG R	0.0Ω 1/10W J

TALLY PW BOARD ASS'Y (FX-4045A-H2)

⚠	Symbol No.	Part No.	Part Name	Description
	DIODE			
	D4002-03	SLR-56DC3F	L.E.D.(ORG)	
	OTHERS			
		CM48038-001	L.E.D.HOLDER	

POWER SW 1 PW BOARD ASS'Y (FX-9051A-H2)

⚠	Symbol No.	Part No.	Part Name	Description
	OTHERS			
⚠	S9901	QSW0380-001	PUSH SWITCH	(POWER SW)

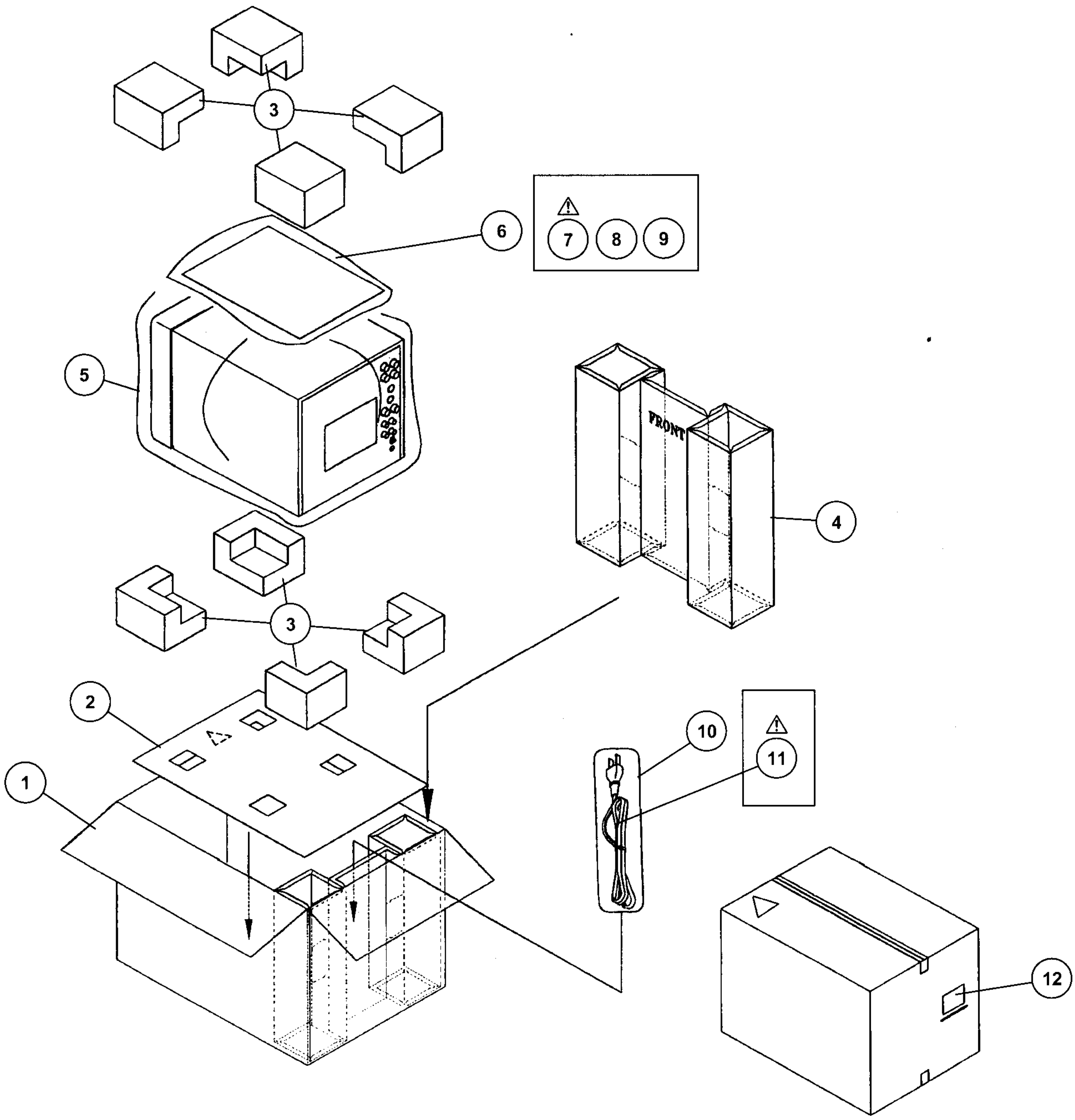
SUB POWER PW BOARD ASS'Y (FX-9069A-H2)

⚠	Symbol No.	Part No.	Part Name	Description
	RESISTOR			
⚠	R9901	QRC122K-105	COMP.R	1MΩ 1/2W K
	CAPACITOR			
⚠	C9901	QFZ9036-473	MF CAP.	0.047μFAC250V M
⚠	C9902	QFZ9036-473	MF CAP.	0.047μFAC250V M
⚠	C9904	QCZ9079-472	C CAP.	4700pFAC250V M
⚠	C9905	QCZ9079-472	C CAP.	4700pFAC250V M
⚠	C9906	QCZ9079-472	C CAP.	4700pFAC250V M
	OTHERS			
		CEMG002-001Z	FUSE CLIP	
⚠	F9901	QMF51D2-4R0J1	FUSE	4.0A
⚠	J9901	QMCB006-C01	AC INLET	
⚠	LF9901	CELF006-001J1	LINE FILTER	
⚠	VA9901	ERZV10V621CS	VARISTOR	

SUB POWER 2 PW BOARD ASS'Y (FX-9072A-H2)

⚠	Symbol No.	Part No.	Part Name	Description
	RESISTOR			
	R9905	QRE141J-563Y	C R	56kΩ 1/4W J
	R9908	QRE121J-101Y	C R	100Ω 1/2W J
	R9910	QRE141J-151Y	C R	150Ω 1/4W J
	R9912	QRE141J-122Y	C R	1.2kΩ 1/4W J
	R9914	QRE141J-103Y	C R	10kΩ 1/4W J
	R9915	QRE141J-472Y	C R	4.7kΩ 1/4W J
	R9916	QRE141J-822Y	C R	8.2kΩ 1/4W J
	R9917	QRE141J-122Y	C R	1.2kΩ 1/4W J
	R9918	QRE141J-223Y	C R	22kΩ 1/4W J
	R9919	QRE141J-562Y	C R	5.6kΩ 1/4W J
	CAPACITOR			
	C9917	QFLC1HJ-562Z	M CAP.	5600pF 50V J
	C9919	QETN1EM-476Z	E CAP.	47μF 25V M
	C9920	QFLC1HJ-272Z	M CAP.	2700pF 50V J
	C9921	QFLC1HJ-332Z	M CAP.	3300pF 50V J
	C9922	QCS31HJ-821Z	C CAP.	820pF 50V J
	C9924	QETN1HM-105Z	E CAP.	1μF 50V M
	C9925	QETN1EM-476Z	E CAP.	47μF 25V M
	C9926	QFLC1HJ-122Z	M CAP.	1200pF 50V J
	DIODE			
	D9903	1SS81-T2	SI.DIODE	
	D9904	MA4150/M/-T2	ZENER DIODE	
	D9907	MA4150/M/-T2	ZENER DIODE	
	TRANSISTOR			
	Q9902	2SC1740S/QR/-T	SI.TRANSISTOR	
	IC			
	IC9901	AN8026	I.C.(MONO-ANA)	

PACKING



PACKING PARTS LIST

⚠ Ref.No.	Part No.	Part Name	Description
1	LC10453-094A-H	PACKING CASE	
2	LC20637-001A-H	SHEET	
3	CP11460-00B-H	CUSHION ASS'Y	8pcs in 1set
4	LC20638-001A-H	CUSHION SPACER	
5	CP30974-003	POLY BAG	
6	CP30966-001-H	POLY BAG	
⚠ 7	LCT0774-001A-H	INST BOOK	
8	BT-51010-2	WARRANTY CARD	
9	BT-20104A	SERVICE CARD	
10	QPA01203005	POLY BAG	
⚠ 11	QMP1110-244K	POWER CORD	
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